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ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR 1991

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE

COMMITTEE ON APPROPRIATIONS

HOUSE OF REPRESENTATIVES

ONE HUNDRED FIRST CONGRESS

SECOND SESSION

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

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ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR 1991

Tuesday, February 27, 1990.

APPALACHIAN REGIONAL COMMISSION

WITNESSES

GOVERNOR ROBERT P. CASEY (PENNSYLVANIA), ARC STATES' CO-CHAIRMAN

JACQUELINE L. PHILLIPS, FEDERAL CO-CHAIRMAN

FRANCIS E. MORAVITZ, EXECUTIVE DIRECTOR

DAVID E. MEUSER, BUDGET OFFICER

Mr. Bevill. The committee will come to order.

We are pleased to have Ms. Jackie Phillips with us, the Federal Co-Chairman of the Appalachian Regional Commission, who is already doing a very fine job.

Jackie, we welcome you. It is traditional that we put in the record a copy of your biographical sketch. If you will submit that to the staff, we will make it a part of the record. You may proceed as you wish.

Opening Statement of Ms. Phillips

Ms. Phillips. Thank you. I am honored to appear before you and other members of this subcommittee. During the years I served as the Appalachian Regional Commission's Alternate Federal Co-Chairman, I observed first-hand the role you have played in supporting ARC's mission, the economic development of the Appalachian region.

The Appalachian people deeply appreciate the support both you and the Chairman have given. As you know, the Bush Administration has requested $50 million for the ARC Program in 1991. That funding level departs from Administration budget requests for the past eight years and recognizes one of the areas where Congress and the Executive Branch need to reach agreement on future funding levels.

At least for the year 1991, the Administration will watch what ARC does and how its programs impact on an important area of America, Appalachia's non-farm rural community.

Over the past 25 years, ARC has accomplished many of the specific objectives it has set for itself. Two-thirds of the 3,000-mile Appalachian Development Highway System is complete or underway. More than 700 vocational schools have been built and equipped. A network of health care centers has been completed, putting primary health care within reach of every Appalachian.

Thousands of jobs have been created through ARC investments at industrial sites, enabling existing companies to expand and new plants to be built.

But in some areas, Appalachia's problems are stubborn and deep rooted. The Administration's budget will enable ARC to continue to address these problems, especially in the most distressed counties.

The budget request is divided into two categories, highway and non-highway, with amounts calculated to strike an effective balance between the two.

Funding of $30 million is requested to provide the continued progress on the Appalachian Development Highway System, and the remaining $20 million will be used as follows: $12.5 million will fund area development projects and community and human resource development; $4.2 million will finance the Federal contribution toward the administrative expenses of the local development districts and support the Commission's technical assistance program; and $3.9 million will provide for administrative expenses of the Federal and Commission staffs.

I'd like to take a few minutes to give you highlights of the Administration's budget as it relates to special areas of need.

TRANSPORTATION

Since 1965, Congress and the Appalachian States have placed top priority on building a modern highway system to break down the region's isolation, link commercial and industry to markets, and make health care, education and other community services accessible to the region's people.

The funds requested for fiscal year 1991 will be used to help the Appalachian States contract for construction, purchase right of way and engineering. By the end of fiscal year 1989, 2,096 of the 3,025 miles authorized by Congress have been contracted for construction, with 1,999 miles completed and virtually open to traffic.

EDUCATION

The dropout rate in some Appalachian counties is more than one and a half times higher than the National rate. Appalachia still lags slightly behind the Nation in adult literacy and the number of young people going to college. The Administration's budget provides $6.1 million for ARC human development projects, including the following areas in education: skill training for secondary and post-secondary students, retaining the labor force to meet challenging job requirements, dropout prevention and re-entry programs, customized job training for industry, and upgrading the education climate of the region as a whole.

Here are some of the ways ARC addressed those needs in 1989. Almost $1.2 million in ARC funds were granted for 14 new dropout programs and the continuation of 28 others in six Appalachian States.

Almost $1.5 million was invested in work place literacy and/or adult literacy. A grant was made to Corning, New York Community College for instruction in high technology systems and manufacturing concepts for 170 workers from a plant in New York.

INFANT MORTALITY

While the region's infant mortality rate overall has dropped almost equal the Nation's, there are still Appalachian counties where the rate is more than twice as high. These rates can be lowered through outreach, prenatal care and better nutrition. These projects are funded under the $6.1 million budget for human resource development.

For example, in response to increasing shortages of prenatal care, Alabama received $800,000 in ARC funds to expand existing services by establishing a prenatal clinic in each of its 35 Appalachian counties. The project is expected to serve 5,800 indigent women and over 11,000 infants.

DISTRESSED COUNTIES

About 90 Appalachian counties are among the worst off in the Nation in poverty, per capita income and unemployment. ARC funds make a critical difference when, for example, an extremely poor community needs an adequate water or sewer system so that its children can have clean drinking water.

In 1989, ARC funded 70 projects in distressed counties. For example, an innovative program in West Virginia combines appropriate waste water treatment technology with a community self-help program to lower construction, operation and maintenance costs for 11 small, rural communities that have been unsuccessful in raising enough money to meet the Clean Water Act requirements.

An extension of sewer service in Poor Valley Ridge and the community of Sulphur Springs, Virginia, will serve 121 households, 69 percent of whom are low income that have failing septic systems, outdoor privies and direct discharge of raw sewage into area streams.

UNEMPLOYMENT

In West Virginia and the Appalachian portions of eight other states, unemployment is still higher than the National rate.

Some counties have unemployment rates one and a half times higher or more. Since 1980, West Virginia and seven other states have experienced net migration losses as people leave the region to seek jobs elsewhere.

ARC continues to address unemployment by funding projects that will promote small business development, address infrastructure and environmental problems, and help local Government effectively deliver programs and services. Under the heading of community development, the Administration's budget contains $6.1 million for such projects.

I'm happy to report that the Commission continues to explore new ways to fulfill its mission in Appalachia.

Mr. Chairman, it was our pleasure to have you as our guest and keynote speaker at the Aquaculture Conference sponsored by ARC in Alabama this past November. That conference was also addressed by 40 of the aquaculture industry's leading experts from throughout the United States. We had more than 300 participants. Together, I think we forged a solid foundation for the work needed to help this growing industry reach its great potential in Appalachia. A copy of the conference report is here for you.

In months ahead, we will hold at least two more important meetings to examine the potential of other industries. All of our states will participate in a workshop in West Virginia on tourism this Spring. We have scheduled a region-wide furniture industry workshop in Mississippi this Fall. Alabama and Mississippi are co-hosting that conference. We're looking forward to that.

This will be an especially exciting year for ARC. It is the Commission's 25th birthday, and we're planning two special projects to mark that anniversary.

One, we're working on with our States, a project to help the leadership capabilities of the region's youth through internships and community service. One goal is to put in place programs that will be self- perpetuating. A longer range goal is to develop this great resource, our youth, and persuade them there are great opportunities of service and leadership right in our own backyard, that they don't need to leave home to find challenges that will engage their energies and commitment.

As a second part of our anniversary celebration, we will also be taking a hard look at the status and needs of the region's children through a comprehensive research study. We plan to get input from the young people themselves on this activity.

As I stated earlier, one of the top agenda items is highways.

We expect the Administration to address completion of the Appalachian Development Highway System in the National Transportation Policy. I will continue to discuss this with appropriate officials at the Department of Transportation. As you know, there are already other legislative proposals on this issue.

Mr. Chairman, that concludes my testimony. In closing, may I say the funds appropriated for ARC will be administered by me with all the prudence and concern that you expect and the people of Appalachia deserve. Thank you again for this opportunity.

[The prepared statement of Ms. Phillips appears at the end of the hearing record.]

Mr. **Bevill**. A very fine presentation. You couldn't have done better, and this is your first appearance as Co-Chairman.

Ms. **Phillips**. Thank you.

Mr. **Bevill**. You mentioned the meeting that I enjoyed so much. Chairman Jack Murtha, we are pleased to have you, the distinguished Chairman of the Defense Appropriations Committee, the man who writes the biggest appropriation bill in the world. I'm delighted to recognize you.

INTRODUCTION OF GOVERNOR CASEY

Mr. **Murtha**. Mr. Chairman, I just want to tell you how much we appreciate what you've done over the years for the Appalachian Regional Commission.

I know you, Mr. Whitten and John Myers and Mrs. Smith have really been strong supporters of this program. In an area that had 24 percent unemployment just a few years ago, a road was built into the area, which was one of the biggest projects in the entire country at the time, and it really has had an impact.

This particular program is essential to our area even today, even though we've reduced the unemployment from 24 percent down to less than eight percent.

We're still working, and the programs that this entails have been absolutely essential to us. But my job today is to introduce the Governor of Pennsylvania, who has been in the forefront of economic development. Nobody has worked harder to try to bring in industry, to try to work for economic development, than Governor Casey.

His platform when he ran was to try to bring jobs into Pennsylvania, and he succeeded. We've got one of the lowest employment rates in the history of Pennsylvania, and much of it is due to the hard work that he has done.

The Pennsylvania Delegation supports his testimony. We'll vote for whatever you say, Mr. Chairman. We know you don't lose anything on the floor. We know you'll be fair with us, and we're with you.

We hope that you'll be able to squeeze a little bit more out for this particular program, but we support Governor Casey and his testimony.

Mr. BEVILL. Be sure to get those remarks in the record. Governor, we are pleased to have you with us. You have a great delegation here in the Congress, and they certainly speak highly of you. Several of them came by before you arrived.

You didn't get to talk to them, but Congressman Gus Yatron and Congressman Joe McDade and Congressman Gaydos and many of your delegation stopped by. They all have committee meetings like we're having here, of course, so they had to leave and didn't get a chance to talk with you. But, they're very supportive of you and your efforts, and we're pleased that you could be with us today.

OPENING STATEMENT OF GOVERNOR CASEY

Mr. CASEY. Thank you very much, Mr. Chairman, Chairman Whitten, members of the committee.

I want to express my thanks to Congressman Murtha for being here this morning. He and I go back further than either of us cares to admit, I guess.

Mr. BEVILL. You all have agreed not to write a book.

Mr. CASEY. That's right. Seriously, I have known Jack since the time he served in the State Legislature, and I was the Auditor General. We worked together over the years.

The other distinguished members of the delegation whom you mentioned, Gus Yatron and I served in the State Senate together many years ago, and Joe McDade and I grew up together as kids.

So I know all of these men and have the utmost respect for them. I'm very honored to be from a state that counts them as members of its delegation.

I come here today on behalf of the Appalachian Regional Commission and the 13 Governors in that group in support of the fiscal year 1991 appropriation request of approximately $185 million for the programs of the Appalachian Regional Commission.

I'm especially pleased to be here today because we have a Federal Co-Chairman joining with us requesting an appropriation from the Congress.

We recognize, Mr. Chairman, your steadfast support for this program over the years, as well as the strong support provided by Chairman Whitten and this committee in difficult times. It's clear that your efforts have not been lost on the President or the advisors to the President because we see now the inclusion of this program in the President's budget for the first time in some years.

The Governors appreciate the fact that the appropriation for the Appalachian Regional Commission has been included in the President's budget this year. We appreciate, as well, the efforts of our new Federal Co-Chairman, Jacqueline Phillips, and her efforts in this regard.

At the same time, we believe that the request that has been sent over in the President's budget is not adequate to address the needs that remain in this great region.

It's for this reason that we Governors have submitted a supplement to the President's budget request asking for approximately $185 million for the Appalachian Regional Commission for fiscal year 1991.

We hear talk these days about changes in the funding streams of various programs here in Washington, and I'd like to think that some of that change would accommodate the needs of some of the most vulnerable and needy of our citizens, those who live in the region for which I speak today.

ARC funds go precisely to those kinds of efforts, to people who need help in living better lives, in gaining hope and opportunity for the future, better housing, jobs, clean water, the things that really should be the birthright of every American citizen.

In past years, we've submitted to this committee what we call a two-tiered budget. One is detailed project expenditures at a spending level of up to $320 million, the level based on the assessment of the commission as to what the needs are.

The other tier is detailed project expenditures at a level consistent with the House authorization action in recent years.

While the need for the higher level of funding still remains, we recognize the realities and the fiscal constraints under which this committee operates. Therefore, this budget submission, while acknowledging the need for higher funding, focuses on program changes which would result if the President's request for $50 million were increased to $185 million.

This amount would be consistent with the authorization under H.R. 2015. As you know, H.R. 2015 has been reported to the floor by the House Committee on Public Works and Transportation and may be considered by the full House as early as tomorrow, I'm advised.

The Commission and its programs are vitally important to the Commonwealth of Pennsylvania. They're vitally important to our neighbors, the States of the ARC group. We have the largest Appalachian population in our State, 5.8 billion people, more than a quarter of the total in the region.

We have the largest land area of any State in the region and the largest number of highway miles eligible for construction, 453 miles or nearly 15 percent of the total.

Ours is a region of great diversity, as you know, Mr. Chairman. It stretches from New York and Pennsylvania, through West Virginia and Kentucky to Alabama and Mississippi. But our States share one common and dominant characteristic, events which hurt the National economy seem to have a greater impact on our region than on the Nation as a whole.

Historically, that is true. We've paid a bitter price, but we have strong people, and they're still there, and they're still hoping, and they're still looking to the future and to us for assistance.

Traditionally, Appalachia has relied more heavily than the rest of the country on manufacturing and mining and heavy industry. In recent years, these sectors have struggled nationally as a result of global competition and the impact of new technologies.

In the past decade, this region has experienced more painful adjustments and job losses resulting from industrial restructuring. People out there are victimized by changes they cannot understand, they've had nothing to do with, and that sometimes simply throw them aside and put them on the scrap heap.

Well, we don't believe in putting people on the scrap heap where I come from, and this job training, job production effort that the Appalachian Regional Commission makes possible says, in effect, that every person in that region is important, that every person has a right to hope.

In 1980, approximately 38 percent of Appalachian jobs were in the production of manufactured goods. By 1986, manufacturing employment in the region had fallen to 31 percent. Losses in the region were reported in almost all specific manufacturing sectors, primary metals, leather, stone and glass, tobacco, textiles, apparel, fabricated metals, electrical and non-electrical machinery, transportation, equipment and so on. Overall, manufacturing employment in the first six years of this decade was down by 15 percent in Appalachia. Declines in manufacturing have been steeper in this region than in the Nation as a whole.

Increases in the service sector, which have been strong across this country, while substantial in Appalachia, have lagged behind the rate of growth of the rest of the country.

With recent growth in the economy Nationally, the unemployment rate in this region, while still above the National average, has decreased.

However, as late as November 1989, 74 percent of the counties in this region still suffered unemployment rates higher than the National average. In 45 counties, unemployment rates were more than twice the National average. Per capita income in the region, which had increased significantly compared to the National average from 1965 to 1980, declined significantly between 1980 and 1986.

In 1988, this region was home to 20.8 million people, 45 percent of whom lived in non-metropolitan areas. From 1980 to 1988, the population in this country grew by 8.5 percent. The region population grew by only 2.6 percent.

Forty-two percent of the non-metropolitan counties in Appalachia are considered economically weak, and 90 are severely distressed. In the rest of the country, only 19 percent of all rural counties are economically weak. Appalachia's distressed counties have higher dropout rates, higher illiteracy rates, higher infant mortality rates, and a greater shortage of health care professionals.

The real beauty and merit of this Commission is that it's flexible enough to allow each State and each Governor to focus resources in a way that most effectively addresses the problems in that particular State.

I believe in this philosophy. I believe we should reach out and identify areas of greatest need and try to meet those needs. I think that's sound policy. We follow it in our State, and I believe that the philosophy of this Commission historically and in the future will be consistent with that philosophy.

So these resources are helping us to build an economic development partnership in our own State, and at the local level, ARC funds are being used for business development incubators and for reuse of abandoned steel mills in the Monongahela Valley outside of Pittsburgh, as Congressman Murtha and Congressman Gaydos know very well, for selective infrastructure investments.

Infrastructure is a $10 word, but what it means really, as you know, and as we all know, is an investment in the future. Clean water, sewage treatment, the foundation that business firms need to make economic investment. So infrastructure, to me, is just a $10 word for people, because it means investment in the future of people.

Industrial parks and other locally industrial initiated activities are the product of the Commission's efforts.

At the local development district level, Pennsylvania's ARC allocation supports a comprehensive program of business services, financing, export assistance, procurement assistance, specialized services to promote regional growth opportunities, such as the powdered metals industry, which is very big in our State.

At the State level, ARC resources are being used for initiatives in the hard woods industry and in employer-supported child care programs. When you look across the spectrum of the services funded by this program, you're struck with its diversity and its variety and its applicability to the needs of the region it serves.

We want to build a coordinated export partnership system with fast response to get at export markets in other countries, a common data base, the involvement of local export programs. Our Department of Commerce in Pennsylvania and its foreign trade representatives in our State Export Office have worked very hard to accomplish these goals.

The program also supports consulting assistance to the Governor's Economic Development Response Team in our State, the SWAT team, as it's called, that reaches out and works with business in providing jobs for our people. But it also deals with major job dislocations, and we've had some of those, and so have you. When a company decides to move or to close, we send a team right into the plant and provide one stop shopping, if you will, information for people that have been thrown out of work.

When someone loses his job, they don't know where to turn, they don't know where to get information, they get caught in that revolving door of present day society, where they go to one office and get a little bit of information and go to another office and get a little bit more information, and it's totally confusing and demoralizing.

But we don't believe in that kind of Government. This Commission and these funding streams tie in with our effort to go into factories that have suffered from job dislocation and work directly again with people.

We're all in the people business, and that's what the ARC really says. ARC is the people business. Because this job is not yet completed in Appalachia, this request is in the amount I indicated, $185 million. The request contains tables comparing our request with the President's request and our request in fiscal year 1990. The request would provide an increase of some $37 million over the fiscal year 1990 appropriation.

I would point out, as well, that while our request in the nonhighway area is designed to be consistent with H.R. 2015, we've demonstrated in recent years that we can productively and efficiently invest more funding if it is available.

This request would let us move forward on several fronts to help the region's people build a foundation for the 1990s and the century beyond.

Specifically, it would include the following elements. First, $144 million for the ARC Highway Program, nearly all of it, almost $140 million, would be for further progress on the corridors. It would enable us to complete 30 miles of construction and make progress on an additional 70 miles of the system.

Second, $46.6 million for the community development program, including infrastructure improvements, assistance for business development and housing, and $8 million specifically targeted for basic services to about 4,000 families in our most distressed communities.

Third, $6.1 million for special assistance in our Human Development Program, primarily in the areas of rural education and job training, infant mortality reduction, and youth leadership programs.

Four, $4.2 million for support of local development districts and regional technical assistance.

Five, $2.3 million for the Federal 50 percent share of Commission expenses, which will be matched by an equal contribution of all of the Appalachian States.

Six, $1 million for the expenses of the office of the Federal Co-Chairman and Inspector General.

Seven, $600,000 for costs incurred by Federal agencies in administering projects other than highways.

The budget document contains details of these programs and a more detailed description of the region's economic condition.

In carrying out these programs, the Governors of the 13 Appalachian States reaffirm their commitment to the ARC partnership and the process.

As you know, the ARC was conceived nearly 25 years ago as a unique collaboration between local, State and Federal Governments to ensure that Federal assistance would be guided to where it was most needed and would have the greatest impact. It was designed to return authority and responsibility to State and local Governments and to address local needs within the context of overall National goals and individual State priorities. From its inception, this unique partnership has been characterized by mutual respect and bipartisanship among the members and the recognition that each member has a vital role to play in assuring the integrity of the process.

The Commission has had the flexibility to respond quickly and effectively to a wide variety of economic development issues.

While much remains to be done, by any reasonable measure, the ARC process has been a key factor in the enhanced economic growth and improved quality of life in Pennsylvania and throughout the Appalachian region.

Mr. Chairman, thank you very much for this opportunity to present our position this morning. I'm very grateful for the very cordial and warm reception you've accorded to us.

It means a great deal to us to know that we have your confidence, and we now would be happy to respond to any questions you might have.

[The prepared statement of Governor Casey appears at the end of the hearing record.]

Mr. **Bevill**. Governor, that's a very fine statement. I certainly feel good with our two Co-Chairmen here starting off the new year and for this coming year.

We'll be looking forward to the things that you all are going to accomplish, because you've obviously got a good knowledge of what the program is all about.

Jackie mentioned that this is the 25th birthday of this program. Congress said at the time they authorized this program that it was for the purpose of giving the Appalachian area, the people in those areas of poverty in the Appalachian area, an equal opportunity with the rest of the country.

Certainly, it's headed in that direction, and it's doing that, so I think that you all are going to do a great job.

Jackie, I'm going to ask you as the designated Federal Co-Chairman, what are your priorities for the Commission? You pointed out very ably all the things that have been accomplished. What are your priorities?

PRIORITIES

Ms. **Phillips**. Well, at whatever budget level Congress specifies, my priorities would be in direct relation to what I perceive to be the most pressing problems of the area and what we can do within the Commission's mandate and mission.

Continued construction of the essential segments of the highway, quite clearly, is enormously important. Technical assistance with critical environmental problems, such as solid waste and water pollution is also growing in importance.

We find that many people can't understand the regulations, and we would certainly continue to provide technical assistance, circuit riders, and that kind of help.

I would also put emphasis on programs for an educated work force, a critical concern of mine. Job related training, dropout prevention, adult literacy, people getting their GEDs, all kinds of things that would help our Appalachian work force more ably respond to the changing needs of a global economy.

Basic services for our most distressed counties, clearly. continue to be a priority, including such projects as water and sewer lines and infant mortality reduction. Physician recruitment is another thing we do and will continue for the basic health care of Appalachians.

All types of job creation programs, are high priorties so that our educated work force can have jobs and stay in the communities. Support for small and medium size businesses, incubators, technology transfer are included in that, and I'll support the efforts to upgrade planning and problem solving skills of all our people to promote and manage economic development.

ECONOMIC CONDITION OF APPALACHIAN

Mr. Bevill. What, in your view, is the economic condition of the Appalachian region at this time, and how does that compare with the rest of the Nation? You pointed out about the per capita income and other things.

Ms. Phillips. To summarize what the Governor and I cited in our testimony, as a whole, the Appalachian region has made considerable progress over the years. It is closing the gap in terms of many of the standard economic indicators, such as per capita income, unemployment, poverty and infant mortality.

Nevertheless, the region was heavily impacted by job losses in basic manufacturing during the recession of the early 1980s and continues to experience decline in coal related jobs. The region doesn't seem to spring back as quickly as some other parts of the Nation.

Of the region's 397 counties, 90 remain severely distressed, and above that, there are a number of counties that are not statistically distressed, as we classify it, but still need much assistance in order to maintain their upward progress and not slide backwards.

So we're very concerned about those. The areas of the region with the most severe unemployment problems are the coal producing States of Kentucky, Ohio, Virginia and West Virginia.

REMAINING NEEDS IN APPALACHIA

Mr. Bevill. Very good. Governor, what, in your view, remains to be done throughout the Appalachian region? It's very good, I think, what you're doing with your existing industry there when they have trouble. So many of our leaders forget about the existing industry. They're always looking for new industry. I felt that was very good what you're doing in your State with industry.

What do you feel now remains to be done in the Appalachian region?

Mr. Casey. Well, I think, from my perspective in Pennsylvania, our challenge in our State is to even out economic opportunity.

Many parts of our State, of course, it's a large, diverse State, as you know, are doing quite well economically. We still have pockets, areas that have not kept up.

The Monongahela Valley is a good example of that, Indiana County is an example, Clearfield County would be an example. So you have these pockets.

In the context of this discussion, I guess 52 of our 67 counties are classified within the Appalachian region, so that would give you an idea of our challenge.

But the idea of what you said a few moments ago is to reach out to those people who have been left behind up to now for one reason or another because of the fact that they have not been able to get a decent education or they have a literacy problem or job training needs.

All of these things are part of the mix. But I would want to emphasize that the challenge of this Commission and the challenge that I have as Governor is to bring economic opportunity to everyone and not have regions or pockets within a State or within a region where that is not the case.

I think that's the philosophy behind this program. It's certainly my philosophy and what we've tried to do, and I think successfully, in our State.

GOVERNOR'S SUPPORT

Mr. BEVILL. Yes. I understand that the Appalachian Governors recently met. How would you describe the level of their support for the Commission and this program?

Mr. CASEY. Yes, we met yesterday. As you know, the Governors are meeting in Washington this week, and as a matter of fact, I left Speaker Foley just a few minutes ago.

He was going to address a preliminary session of the Governors Association. The Commission met yesterday, well attended, and I would say unanimous support among the Governors for what I've said here today and the funding level that we've asked for.

We had good attendance yesterday and a lot of enthusiasm. The 25th anniversary year is here, of course, and we're going to be hosting in Pittsburgh a youth development conference in the Fall, in October, and it's really testimony to the young people that have benefitted from this program over the last 25 years and the ones that will benefit in the future.

My sense is very strong support, unanimous support among the Governors for the program.

Mr. BEVILL. Well, this panel listens to you, and you know these are the folks who are building, I believe, Locks 7 and 8 on the Monongahela River up there, isn't it?

Mr. CASEY. Right.

Mr. BEVILL. I was up there three or four years ago and had the opportunity to see the need there. You have a lot of friends here in the Congress.

You mentioned that you requested $185 million. That certainly is very reasonable considering that we used to have $350 million a year for this program. But like we've had to do with all of our programs, we've had to take our share of the cuts to meet the budget situation. This panel has been 100 percent supportive of ARC. It still is, and we'll continue to be.

Particularly, we're always impressed with the accomplishments, over 700 industrial parks helping people get trained, get jobs, places to work; over 700 vocational schools, getting people trained for jobs; and then the health clinics in the rural areas that have never had health facilities before.

It's a great program, and we appreciate this program very much, just as you do. I'm hopeful that we can certainly come as near to your request as possible, but we'll have to wait and see. We have to try to decide priorities, and certainly we'll do what we can for this program.

The Chair recognizes Mr. Whitten.

Mr. WHITTEN. Thank you, Mr. Chairman.

Governor, we are very glad to have you here. Mr. Bevill and members of this subcommittee, with the support of Congress, have done a great job.

I'd like to relay that this is the twelfth year I've had the responsibility of being chairman of the Full Committee, and trying to make the activities of all thirteen subcommittees fit into one pattern.

In that process, I take the opportunity to point out the difference between productivity and activity and between investment spending and short term spending. I think that conditions today are such that we're going to have to look at things like the Appalachian program to help America grow. Many things are beyond our control, but nobody can fully appreciate what's happened in Europe and what's happened in these other places around the world, and how that will affect us.

The President asked for a reduction of 120,000 in military troop levels, and, as you say, companies across our Nation are announcing lay offs and plant closings. Because of things like that, it looks to me like we're rapidly coming to the place where we're going to have to make some decisions.

The example that the ARC has been over the years and what it's done for the country in the way of making it a richer country is just unbelievable in that we were making investments in our country.

In 1983, after Mr. Reagan recognized that we were in a recession and asked various and sundry folks to deal with it, it finally came down to our Committee on Appropriations.

What we did was ask all the subcommittee Chairmen to see what projects had been justified but not funded. With that as a base we came out with our jobs bill.

Also, over 39,000 communities participated in revenue sharing, and that contributed to creating jobs all over the country.

Those got us out of the depression. So that is why I say there is a difference between investment spending, the effects of which may last for 100 years, and spending on something that may last 24 hours. We need to change the rules to reflect that difference.

That's our mistake here. So we're all tied down by the budgets scorekeeping rules. But as I see more and more announcements about closing down I say, "We may have to change the rules."

May I say what you described about how things look, it's based on selling assets and borrowing money, because our debt is now $3 trillion—an increase of two trillion over the past 10 years.

There's no way for us to go bankrupt. When you owe $3 trillion, we're going to have to pay it. If we're going to pay it, we're going to have to produce, cut back and hold down, sure, but not hold down on looking at our own country.

I have seen this subcommittee and Mr. Bevill and the others, go to the wars and we've won, and I think the situation is happening again.

I'll digress a little bit. I think you've heard it before, but it fits right in. Many years ago, Mr. Fowler, who later was Secretary of Treasury, and I were walking over from the Senate. He had been in charge of a committee to see that we had a sufficient, productive capacity to deal with Russia. As we walked on, he said, "Jamie, if I were in charge of Russia, and thought I faced a war with the United States, I would declare five years of peace. Just think," he said, "if we were to call all our servicemen home, if we were to cancel military contracts and all the related industries folded up, we would have the doggonedest depression we ever saw."

This was a very disturbing statement. I knew we had good times, more cars than we could park, more clothes than we could wear, and more of just about everything.

I could see what he was talking about, and yet I could not believe we had to have a war or preparation for war to have domestic prosperity.

After quite a bit of thought, I realized that war or preparation for war was not necessary for prosperity, that it was the extra effort which created prosperity; that if we were just smart enough to expend that extra energy in improving our country, building roads and dams, renewing our bridges, building schools and public improvements, we would have the same prosperity and end up a rich country. Whereas, in war or preparation for war, we use up our metals, our woods, our fuels, and all the rest and end up a poorer country in material wealth.

That is where we stand today.

Now, that, in my judgment, is coming to pass. Say all you want to. I went to Russia in 1956, and what we have over there is State Socialism run by communists.

Nobody anticipated what Mr. Gorbachev was going to say or do, but looking backwards, he must have realized people were fed up with their condition.

So I'm just glad you set a good example. I'm proud of all the things from this subcommittee ~~you've~~ done, but I think it's going to serve as a pattern that we can use in the rest of this country.

I think we face it more rapidly, and what I'm telling you, I've had a chance to tell the President, that sooner or later, we're going to find out that a service economy, where they think they can make a living taking in each other's laundry, won't work.

We're going to have to go to work and produce, and we're going to have to go to work leaving our country a richer country. I think it's tragic that the Administration did not recommend new starts, but we have to deal with it.

We need not only new starts, but we need to take a running start to restore our country, because that's our real wealth.

This paper money has got nothing behind it except the promise to pay, and we've got an appearance of prosperity from having sold assets and by borrowing money.

What we need to do is start investing that money. I've taken extra time with this, but I've got a long record along this line, and I may have been wrong about a whole lot of things, but I'm not wrong when it comes to taking care of your own country.

Mr. CASEY. Thank you, Mr. Chairman. If I can just react to what you said, I agree totally with the points you've made.

In our State, I've submitted the point that we've got to be a manufacturing State. We've got to continue to manufacture things and make things.

The manufacturing part of your economy provides the power and the source to support the other segments, the service sector and the high tech sector. It's not the other way around.

Mr. WHITTEN. The record is good. You know, since 1934 when we started meeting local problems with National programs, our National wealth has increased 41 times. Since 1940, it has increased 36 times.

I think the day is coming when we'll need a Jobs bill again, and I'll say again, I've been here a long time. I've seen what has happened in Appalachia as a result of investment spending. It's just unbelievable.

We try to do things here. Recently, I was joined by Mr. Murtha, our Defense Subcommittee chairman, in introducing a bill calling for the use of these bases that are going to be closed, where agreeable, and set up old CCC-type camps as a place to get these youngsters out of the drug environment they're in now.

So we are mechanically trying to go, and we are ready to go. In the meantime, we have to work under the rules that have been given to us, but we can't help but look around and see the changes that face us.

Thanks a whole lot, and it's been a pleasure. Thank you.

Mr. BEVILL. Thank you, Chairman Whitten, for those remarks.

The Chair recognizes Mrs. Smith. We're delighted to have you with us. We know you've been tied up in another committee like always, and we're glad you could make it for a while anyway.

Mrs. SMITH. Thank you so much.

Let me join in saying how happy we are to have you here with us, Governor Casey, and Ms. Phillips, both of you for the first time.

It's been a great experience for me to get to hear both of you, and I'm sorry I didn't get to hear quite all of your message, Ms. Phillips.

I agree with our great Chairman here 100 percent that this committee has always been totally supportive of ARC. Mr. Whitten isn't here now, but I'll tell you he's taught me a lot about the importance of investment in the future, and I appreciated what he said.

Could I ask you one question that isn't quite relevant, Governor Casey, but since coal mining is such a vital industry in many of the ARC counties, has the Commission given any consideration to what impact the acid rain provisions of the Clean Air bill, or rather the

Administration's proposal for the Clean Air bill, would have on your economy?

CLEAN AIR LEGISLATION

Mr. **Casey**. I don't know that the Commission has taken an official position, but, from my perspective in Pennsylvania, we believe that that proposal has got to be changed and amended quite significantly.

We believe that we have the responsibility of paying our fair share in Pennsylvania, and we intend to do that. We have already brought down the emission levels from the coal fired power plants, particularly, which is part of this problem, to the lowest level, or put another way, the highest purity level, if you will, of all the major coal producing states.

It's a regional problem, and it's one that must be met regionally, if not Nationally. What I don't want to see happen is a bill that would penalize, first of all, jobs in Pennsylvania, and also those who pay the utility rates in Pennsylvania.

We're willing to pay our share of this burden and shoulder our share of the burden, but we don't believe it's fair to, in effect, penalize Pennsylvania and in the process subsidize contiguous States whose emission levels have not been brought down to where ours are.

We've been very strong environmentally in Pennsylvania. We've put on the books in the last three years the toughest environmental protection legislation in the country. We have in our State a Clean Water Investment Program called Pennvest. Mr. Whitten quite properly talks about investment. We've invested in communities in Pennsylvania that couldn't afford it otherwise over $400 million for over 260 projects to provide clean water and sewage treatment.

We have the first mandatory recycling program of any major State in the country in place right now. We've put on the books a new toxic waste clean-up law so that we don't wait for the Superfund law to take effect.

We're moving ahead and paying for it ourselves from State money. Finally, we've taken very strong steps in the clean air field with automobile emissions and volatility regulations for gasoline, because we have serious air pollution problems in Pennsylvania and non-attainment areas.

So we understand fully the necessity for a strong environmental protection policy. We don't think that pollution should be the price of prosperity.

We think both of those goals, anti-pollution and prosperity, are totally compatible. Having said that, we believe that any National policy on acid rain must take into account the contribution that Pennsylvania has already made in the investment of hundreds of millions of dollars in technology to address our problem that has brought us now to levels which are superior to Ohio and some of the other States that adjoin us to the West.

Of course, that air stream carries the material from Indiana and Ohio and the other States, as you know. Pennsylvania is willing to pay its fair share, but we don't want to be unfairly treated in the process in terms of losing jobs, and coal jobs are among them. They're very important among them.

Mrs. **Smith**. I understand your concern very well. I knew you had an outstanding environmental record, and that's why I brought it up.

Certainly, this is legislation with which we have to be very, very careful to be fair to everybody.

Mr. **Casey**. Yes.

BUDGET PRIORITIES

Mrs. **Smith**. Ms. Phillips, I appreciated your comments very much, and I'd be interested in knowing a little bit about what transpired between your office and the current Administration, including OMB, to bring about this change in budget priorities.

Mr. **Bevill**. Obviously, she has a lot of clout.

Mrs. **Smith**. She must have.

Ms. **Phillips**. One of the major goals of this Administration is to reach out to Congress with its concerns about people thereby demonstrating that the Administration is willing to work with the Congress on many issues.

Mrs. **Smith**. I noted in your statement you indicated that the Administration will watch the ARC programs in fiscal year 1991. Does this mean to imply that perhaps this is a trial year and we might not have a budget for it after that?

Ms. **Phillips**. No, I didn't want to imply that. I'm sorry if that did imply that. They will be looking at ARC in the context of National policy, critical needs, waning incomes, Federal tax income, and they will be looking at it in the context of all the National needs.

Mrs. **Smith**. Well, we appreciate very much having both of you folks here. I want to explain that our ranking minority member, Mr. Myers, is absent this morning because of Mrs. Myers' illness, and I know he's very sorry not to be here today.

Ms. **Phillips**. Thank you for saying that. We've missed him. Would you please give him our best, and also Mrs. Myers?

Mrs. **Smith**. I will do that.

Mr. **Bevill**. Well, thank you both for a fine presentation. I have many questions here and so do the other members. We'll provide them to be answered on the record.

We've got two new Co-chairmen here, but that's not all today. We've got my new assistant, Jeanne Wilson, who has already done a good job in keeping me straight by sitting up here and whispering to me. We're pleased to have you with us up here, Jeanne.

The committee will now stand adjourned until 10:00 tomorrow.

[The statements of Ms. Phillips and Governor Casey and the following questions and answers are provided for inclusion in the hearing record:]

Economic Conditions

Mr. Bevill. What role has the Appalachian Regional Commission had in affecting economic conditions?

Ms. Phillips. ARC has had the greatest impact on economic conditions in the following ways: the majority of jobs in the Region have been created in counties with development highways and access roads, we have provided water and sewer lines to many small towns and rural communities and we have assisted in the reduction of infant mortality and provided primary health care throughout the Region.

We have also had an affect by increasing the availability of vocational schools and job related training, we have assisted in the development of small businesses and we have worked toward the development of local leadership and the ability of local community institutions to handle economic planning and development.

Economic Development

Mr. Bevill. How would you like to see Appalachia progress into the 1990's?

Ms. Phillips. I would like to see strong leadership created in our communities in the area of economic planning and development, better communication, including telecommunications, and transportation systems, a better educated and more competitive workforce and a reduction of infant mortality in our most distressed counties.

Mr. Bevill. What type of economic development projects does ARC find to have the most lasting value to the Region?

Ms. Phillips. Economic development projects that have lasting value include highway construction which assists in job and market development, job training and retraining for the development of a skilled workforce and basic health care programs such as sewer and water line construction, infant mortality reduction and physician recruitment.

Also having lasting value are projects that provide for long-term technical assistance in: local leadership development and long-term economic planning, and emphasis upon specific industry development through conferences, workshops and research and technical assistance.

Needs of the Region

Mr. Bevill. What do you consider to be the most pressing needs of the people of Appalachia currently?

Ms. Phillips. I consider the most pressing needs to be basic services in those communities lacking water and sewer facilities, the availability of jobs, a better trained and more competitive workforce, improved literacy rates, and improved local leadership for strategically planned economic development.

Mr. Bevill. What, in your view, remains to be done throughout the Appalachian region?

Ms. Phillips. I view the remaining critical needs of Appalachia are to complete critical sections of the Appalachian Development Highway System, improve adult literacy and job-related training and to encourage business development.

Technology Transfer

Mr. Bevill. What is the Commission doing to assist the states in transferring technology expertise from development to practical application?

Ms. Phillips. In February, 1988, the Appalachian Regional Commission authorized funds in the amount of $1.6 million for special projects within each state which would promote the transfer of new technologies to businesses and industries in the Region. This initiative resulted in 19 projects being funded. All 13 states participated in this initiative. In Alabama, for instance, these funds were used to assess the level of technology being used in the apparel industry, a major employer in the state. Primarily aimed at small and medium sized firms a series of seminars is now underway to acquaint these firms with new ways of doing business such as computer aided pattern making, improved inventory control through bar coding, and unit production handling systems.

In Maryland technology transfer initiative funds were used to assist the state in establishing a flexible manufacturing module at Hagerstown Junior College. When fully installed this module will be used to train area industries in the use of computer controlled machinery. Area businesses will also be able to use the module for trail production runs through leasing arrangements with the college. At the Regents Center for Education and Research at Marshall University in Huntington, West Virginia, a Commission grant was used to establish a computerized listing of firms and individuals providing technical expertise in the state. Then Center director acts as a broker between firms desiring help and available resources. He reports substantial usage of the directory.

The Commission also sponsored a region wide conference in Greenville, South Carolina, in September 1988, dealing with methods of transferring technology and modernizing industry.

In partnership with the Southern Technology Council of the Southern Growth Policies Board the Commission has actively supported the Consortium for

Manufacturing Competitiveness. Seven junior and technical colleges in the Region have been linked together in the consortium to exchange ways of staying current with technological developments and provide up-to-date training of the next generation of workers. The Commission is a co-sponsor of a two day conference for practitioners in Pittsburgh, Pennsylvania, in March, 1990, hosted by Pennsylvania's Economic Development Partnership. The conference entitled "Modernizing America's Industrial Base" is also sponsored by the Advanced Integrated Manufacturing Centers Partnership, the Economic Policy Institute, the Industrial Technology Institute, the National Association of Manufacturers and nine other sponsors.

Aquaculture

Mr. Bevill. The Commission held a conference on aquaculture last year. Does this seem to be a potential growth area for the Region?

Ms. Phillips. The demand for fish products is outpacing supply and will continue to do so. There will be a 20 percent short fall in the global supply of fish by the year 2000. The industry is relatively new and the infrastructure is not now capable of handling rapid expansion.

Aquaculture can flourish in the Region if there is a blueprint for the industry. Fish farms could be established near the Region's distilleries and power plants. Self contained tanks and net farms could be used to raise fish in water adjacent to recreational areas. Also, there is a good opportunity for new species and value added products unique to Appalachia.

Rural Health

Mr. Bevill. What types of rural health issues are being given priority at the Commission?

Ms. Phillips. Infant mortality reduction remains a priority since it is still a pervasive problem in many portions of Appalachia. The Commission is particularly interested in projects which improve or expand prenatal care in areas of the Region where infant mortality rates exceed the national average by at least 50 percent, or where relevant data indicate significant prenatal care delivery problems.

In addition, the Commission will continue to provide limited assistance to health manpower recruitment and retention projects designed to increase the availability of needed health professionals in rural Appalachian communities.

We also have a number of useful studies on various health related issues, the results of which we share with the states. Some of the recent topics of the studies are Continuing Care for Older Adults and Health Care for Indigents.

Education

Mr. Bevill. How are ARC educational programs addressing the problems of Appalachia?

Ms. Phillips. A large number of Appalachian youth and adults are improperly prepared for entering the labor force. The Commission's primary thrust in education is to upgrade the Region's manpower. Much of the recent efforts have been toward ensuring that the Region's populace has access to secondary and post-secondary job-specific training, retraining the labor force to meet changing job requirements,ensuring that the Region's youth complete their education by providing dropout prevention and reentry programs and customizing job training for specific employers located or moving into the Region.

School Dropouts

Mr. Bevill. What has the Commission done recently to address the problems of school dropouts?

Ms. Phillips. Dropout prevention has been a major component of the Commission's education program. Since 1985, the Commission has awarded $6.5 million dollars to 260 projects in school districts, individual schools, and community colleges in the Region. The majority of the programs have been public awareness, student/peer mentoring, tutoring, and alternative classrooms.

Evaluations of the programs show noticeable improvement among the targeted students was made in daily attendance and reduced tardiness rates; school performance (grades improved); and discipline. Project coordinators reported that students began to show greater interest in school activities and motivation and self-esteem improved.

Leadership

Mr. Bevill. In your testimony, you discussed the ARC's 25th Anniversary Youth Leadership initiative. What results would you like to see from that Activity?

Ms. Phillips. Through the Youth Leadership initiative, I would like to see young people understand how they can make changes and improvements for their community even when there are major problems and to recognize long term problems and how they impact their lives.

This initiative should also help them learn to put together ideas and resources from local, state and federal partnerships, to access the system and become effective leaders, and to understand that there are ample opportunities and rewards for remaining and working in their communities.

Solid Waste

Mr. Bevill. How can the Commission assist the states in addressing environmental issues such as disposal of solid waste?

Ms. Phillips. One of the ARC's major investment objectives is to "develop and strengthen local government through assistance to service consolidations and other institutional arrangements that will help local partners better sustain a climate for economic growth and stability." Funds are provided for the development of solid waste plans, circuit riders to provide technical assistance to local operators or rural water systems, system consolidation planning, design of alternative wastewater systems for communities that cannot afford conventional treatment to meet Clean Water requirements, and supplemental assistance for construction grants for water, sewer and solid waste.

In addition to grant assistance, the ARC can play a clearinghouse role, informing member states of pending legislation both at the Federal level and in other states; arranging presentations on major studies impacting environmental issues and economic development; and undertaking limited research to address the specific concerns of the states.

Federal Programs

Mr. Bevill. Please describe the Federal programs other than ARC which provide for the needs of the Appalachian Region?

Ms. Phillips. There are several Federal programs that provide similar assistance as ARC to all areas of the U.S. and with which we coordinate on ARC funded projects. These programs are as follows:

Department of Agriculture has three programs that direct financial assistance to rural areas: Farmers Home Administration guarantees loans to rural businesses and industries, makes loans and grants for the construction of public facilities and national rural development corporations, and makes loans for rural housing. Agricultural Stabilization and Conservation Service makes Commodity Credit Corporation loans and payments to farmers. Rural Electrification Administration makes loans and loan guarantees to rural electric and telephone cooperatives and companies.

HUD-Community Development Block Grant program makes grants to state and local governments to fund local community development projects that support housing rehabilitation, economic development projects that support housing rehabilitation, economic development, public works and other activities that create and retain jobs. The Administration proposes to target this assistance to distressed communities.

DOT-Federal-Aid Highway System provides funds by Federal highway user fees for highway construction and repair in all states.

HHS-Primary Care Block Grant program provides grants to States for operation of community health centers in medically underserved populations. The Administration proposes to no longer require the States to match the Federal contribution.

Department of Labor - Job Training Partnership Act provides job training, job finding, and relocation assistance to workers who have lost their jobs due to plant closings, technological change and increased imports. The Administration proposes to continue this program with reforms allowing allocations to the States according to needs rather than an arbitrary formula that spreads resources tall states regardless of need.

Department of Education - Vocational Education program provides assistance at the secondary and post-secondary levels. The Administration proposes to focus Federal resources on programs for populations that have long been underserved by vocational programs.

Economic Development Administration has given priority consideration to projects designed to benefit distressed rural communities. EDA expends almost 70 percent of its resources on rural projects.

Small Business Administration allocates about one-third of its loan guarantee program to support businesses in small and rural communities.

Mr. Bevill. How does ARC interface with other Federal agencies and state and local governments to avoid duplication of efforts?

Ms. Phillips. Much of the ARC program is actually administered by other Federal agencies, either providing a portion of the matching share for an eligible Federal grant-in-aid program under Section 214 of the ARDA, or providing additional resources that will be used locally in accord with a Memorandum of Understanding between the Federal agency and ARC.

At the state level, the Governors' Alternates are responsible for coordinating with various state agencies that may have a interest in a project proposed for ARC funding. ARC direct grants are often used at the state level to "pilot" gubernatorial initiatives -- in business development, infant mortality reduction, housing, or educational reform, for example. In these instances the relevant department of state government is generally involved in the demonstration effort. At the local level, the Local Development Districts guard against use of scarce resources in ways that would duplicate existing programs.

Additionally, ARC adheres to the principles in Executive Order 12372 and requires clearinghouse review in those states in which an official state consultation process has been established.

Solid Waste

Mr. Bevill. ARC is helping local communities deal with solid waste disposal. Please outline your current activities and describe what can be accomplished by ARC involvement in this area.

Ms. Phillips. The Commission has provided limited support to help state and local governments address some of their solid waste problems. Last year, for example, planning funds were provided to Alabama for planning and establishing priorities for improvements to solid waste systems at the county level, as mandated in their state legislation. Southern Tier West Regional Planning and Development Board in New York received a grant to develop site specific industrial waste reduction plans in its three-county area. Several Kentucky counties received assistance for purchase of solid waste compacting equipment.

Since solid waste projects must compete with other projects for water system improvements, business development, literacy, education, infant mortality reduction, and other projects in the pipeline, ARC is not doing as much as many local governments would like in filling the funding void for rural solid waste solutions. We do think its a priority problem area and, at our January Commission meeting, had a presentation from staff at the Office of Technology Assessment describing their study on municipal solid waste policy options at the Federal level. ARC will be tracking federal legislation to help assure that rural areas aren't left out of the mix when environmental legislation is considered by Congress.

In addition, at this year's LDD conference we will be holding a workshop on current legislation on this issue.

Aquaculture

Mr. Bevill. Ms. Phillips I'm delighted to see you've printed a report from the Birmingham meeting on Aquaculture Opportunities in Appalachia. Is this document indicative of ARC's intent to continue to support aquaculture? What about the aquaculture education project ARC funded last year (a photo of the task force is found on page 26), are you committing additional resources to see that the project is completed? If so, how much?

Ms. Phillips. Aquaculture has flourished in parts of the Region as an income earning substitute for soybeans, cotton and other crops. Historically, aquaculture has not been thought of as a rural economic development tool. However, there is potential for increased aquaculture development in parts of the Region and the Commission will proceed cautiously because the industry is both capital intensive and management intensive with no seasonal breaks. In regard to our support of the aquaculture education project, the Commission frequently gets in on the ground floor in providing one-time support for innovative ideas. This project was viewed as a segment of building an infrastructure for the industry in anticipation that other federal and state agencies would provide similar assistance.

FY 1991 Budget

Mr. Bevill. What was the amount of the Commission's FY 1991 budget request to OMB?

Ms. Phillips. The Federal office initially requested 110 million dollars for Fiscal Year 1991 and then, with further discussions with OMB, we reached the decision on 50 million dollars.

Mr. Bevill. What community development activities currently being performed in FY 1990 are not funded in the President's FY 1991 budget request?

Ms. Phillips. There are no categories of community development activities currently being performed in fiscal year 1990 that are not provided for in the President's fiscal year 1991 budget request.

Mr. Bevill. Provide for the record a list of all development projects funded with FY 1989 and planned FY 1990 funds.

See attachment.

APPALACHIAN REGIONAL COMMISSION
PROJECTS APPROVED IN 1989

ALABAMA

PROJECT NO	PROJECT NAME	DATE APPROVED	SECT	OTHER FEDERAL FUNDS	BASIC FEDERAL AGENCY	STATE FUNDS	LOCAL FUNDS	ARC FUNDS
07805-89	AL'S CONSOLIDATED TECHNICAL ASSISTANCE PROG.	041089	300	0	ARC	110000	0	110000
09691-87	COOSA COUNTY WATER EXTENSION	061689	214	0	USDA	0	337400	200000
09777-87	TOWN OF CARROLLTON SEWAGE TREATMENT FACILITIES	022189	214	193000	USDA	0	77600	93400
09876-87	CITY OF ROANOKE SEWER SYSTEM IMPROVEMENTS	111488	214	547020	EPA	0	247564	200000
09943-88	COPELAND/FERRY/PUMPKIN CNT.WTR. IMPROVEMENTS	011889	214	0	USDA	0	387000	149000
09946-88	SILVER RUN WATER EXTENSION	082989	214	90600	HUD	0	60400	151000
10000-88	GARDEN CITY SEWER SYSTEM	061589	214	720000	COMMERCE	0	280000	200000
10156-88	SNEAD SEWER SYSTEM	100688	214	0	HUD	320059	574751	200000
10202-89	LINEVILLE WATER SYSTEM IMPROVEMENT	022189	214	0	USDA	0	252675	200000
10203-89	CEDAR BLUFF WATER TANK CONSTRUCTION	022189	214	0	USDA	0	237600	195400
10220-89	CITY OF MOODY WATER&DSEWER SYSTEM IMPROVEMENTS	070589	214	0	USDA	0	172550	172550
10221-89	CLEBURNE COUNTY WATER LINE EXTENSION	061589	214	0	HUD	0	127055	127055
10224-89	JEMISON SEWER SYSTEM - PHASE I	042489	214	200000	HUD	0	280707	200000
10230-89	LINCOLN SEWER LINE EXTENSION	091189	214	250000	HUD	0	215000	200000
10233-89	COLBERT CTY.INDUSTRIAL PARK WTR.SYS.IMPROVEMNT	082989	214	689775	COMMERCE	0	489775	200000
10235-89	HANCEVILLE WASTEWATER TREATMENT-PHASE II	052589	214	0	EPA	0	203297	200000
10237-89	WEST BLOCTON SANITARY SEWER SYSTEM	082989	214	250000	HUD	0	240000	200000
10239-89	HUNTSVILLE INTERMODAL CENTER (CRANE RUNWAY)	081589	214	0	HUD	0	563450	300000
10240-89	REMLAP/PINE MOUNTAIN WATER SYSTEM IMPROVEMENTS	061589	214	0	USDA	0	48145	192580
10251-89	ALABAMA RURAL WASTEWATER TREATMENT PLAN	041089	300	0	ARC	0	52500	210000
10258-89	PICKENSVILLE INDUSTRIAL DEVELOPMENT RAIL SPUR	041089	214	0	USDA	0	48000	192000
10289-89	ALABAMA TECHNOLOGY DEVEL.& TRANSFER SYSTEM	080589	300	0	ARC	170000	0	200000
10290-89	SAND MTN VEGETABLE GROWERS DEMO (IRRIG EQUIP)	052589	300	60000	ARC	30000	99000	150000
10309-89	FYFFE WASTEWATER TRANSPORT/TREATMENT	080889	214	190000	HUD	0	140600	200000
10331-89	LIMESTONE COUNTY INDUSTRIAL PARK IMPROVEMENTS	071889	214	100693	HUD	0	50346	100693
10386-89	CULLMAN COMMUNITY IMPROVEMENTS,PHASE I	082989	214	100800	HUD	0	626475	200000
ALABAMA	TOTAL							$4,743,678

GEORGIA

PROJECT NO	PROJECT NAME	DATE APPROVED	SECT	OTHER FEDERAL FUNDS	BASIC FEDERAL AGENCY	STATE FUNDS	LOCAL FUNDS	ARC FUNDS
07769-89	GEORGIA CONSOLIDATED TECH ASST GRANT	070589	300	0	ARC	257775	0	257775
09977-88	CHICKAMAUGA WASTEWATER TREATMENT FACILITY	101188	214	2199737	EPA	1025000	581798	192987
09984E-88	SARA HIGHTOWER REGIONAL LIBRARY-LITERACY PROG.	121388	300	0	ARC	0	0	4921
09984H-88	POLK SCHOOL DIST.ADULT LITERACY PROGRAM (GA)	031589	300	0	ARC	0	0	1500
10091-88	GA ARC DOWNTOWN DEVEL.REVOLVING LOAN FUND PROG	100488	300	0	ARC	0	1000000	1000000
10197-89	TECH.ASST.-IMPLMNT."THE REACH OF SONG"APPAL.	010689	300	0	ARC	0	25000	25000
10205-89	ROME LIGHT OF LITERACY PROGRAM	032089	300	0	ARC	0	25000	25000
10206-89	MURRAY COUNTY SCHOOL RESTRUCTURING PROJECT	050889	300	0	ARC	0	25000	25000
10207-89	CATOOSA CNTY SCH.DROPOUT REDUCTION PROGRAM	041089	300	0	ARC	0	25000	25000
10272-89	CITY OF CALHOUN WATER MAIN EXPANSION	083089	214	0	USDA	150000	200000	150000
10273-89	SUMMERVILLE INDUSTRIAL PARK	072689	214	0	USDA	113250	265900	150000
10317-89	JEFFERSON WASTEWATER TREATMENT IMPROVEMENTS	091189	214	0	USDA	235000	965000	200000
10318-89	BRASELTON WATER LINE EXTENSION	090789	214	0	USDA	60000	40000	100000
10319-89	CANTON/CHEROKEE COUNTY BUSINESS&INDUSTRIAL PRK	081789	214	0	USDA	0	204021	87000
10350-89	CHATSWORTH WATER TREATMENT PLANT-CARTERS LAKE	091189	214	0	USDA	1000000	2070000	200000
10351-89	ELLIJAY WATER TREATMENT PLANT EXPANSION	090789	214	0	USDA	200000	708000	200000
10460-89	N.GA CMTY.ACTION AGENCY SCH.OUTREACH PROJ.	091189	300	0	ARC	0	63000	63000
GEORGIA	TOTAL							$2.707.183

KENTUCKY

PROJECT NO	PROJECT NAME	DATE APPROVED	SECT	OTHER FEDERAL FUNDS	BASIC FEDERAL AGENCY	STATE FUNDS	LOCAL FUNDS	ARC FUNDS
06302+10PC	KENTUCKY APPALACHIAN HOUSING PROGRAM	080889	207	0	ARC	0	0	100000
07779-89	KY-CONSOLIDATED TECHNICAL ASSISTANCE GRANT	050889	300	0	ARC	0	303640	309360
09407-89R	MARROWBONE/GRAPEVINE WATER IMPROVEMENTS PROJ	011889	214	0	USDA	-165000	13100	165000
09423-89	KY APPAL.STUDENT DROPOUT PREV.PROGRAM	061589	300	0	ARC	29360	208000	750000
09423-89S	KY APPAL.STUDENT DROPOUT PREV.PROGRAM	091189	300	0	ARC	10000	53750	225000
09582-89	MACED LEADERSHIP DEVELOPMENT PROJECT	112188	300	0	ARC	0	0	75000
09658-89	KY RURAL WATER ASSOCIATION CIRCUIT RIDER	091189	300	0	ARC	0	30000	30000
09753-89R	BEREA INDUSTRIAL PARK - PHASE II	090789	214	0	HUD	0	300000	300000
09984K-88	LESLIE COUNTY LIBRARY LITERACY PROGRAM	082889	300	0	ARC	0	0	5000
10013-89	APPALSHOP MARKETING & PROCDUCTION -PHASE IV	090189	300	0	ARC	0	13400	50000
10088-88	HUSTONVILLE WATER SYSTEM IMPROVEMENTS	042489	214	0	USDA	0	85000	85000
10121-89	MORGAN COUNTY SOLID WASTE PROJECT	052589	202	0	HHS	85000	10000	106000
10122-88	SHARPSBURG WATER DISTRIBUTION SYS.EXT.&IMPROV.	080889	214	87950	USDA	0	135000	159000
10123-88	BRODHEAD WASTEWATER TREATMENT PLANT	100688	214	0	USDA	0	150000	150000
10141-88	MANCHESTER WATER SYSTEM IMPROVEMENTS	042489	214	0	USDA	0	2495000	350000
10142-89	FLEMINGSBURG-FLEM.CTY.INDUST.PARK WTR.IMPROV.	021089	214	103000	HUD	0	70700	176750
10144-88	STANTON INDUSTRIAL SITE DEVELOPMENT	011889	214	0	HUD	0	197000	197000
10154-89	VANCEBURG/LEWIS CTY.IND.PARK IMPROVEMENTS	092989	214	0	USDA	0	1955000	195000
10162-88	CRUMBLES SPORTSWEAR SANITARY SEWER LINE	061689	214	0	USDA	0	541567	206500
10163-88	PIKE COUNTY HEALTH DEPARTMENT BUILDING	052589	202	0	HHS	920000	1360000	300000
10171-88	WHITESBURG WASTEWATER FACILITIES	100688	214	315561	USDA	0	253000	300000
10172-88	VANCEBURG WATER SYSTEM IMPROVEMENTS	092989	214	0	USDA	0	220000	220000
10173-88	MCKEE SEWER IMPROVEMENTS PROJECT	081789	214	0	USDA	0	191500	186000
10174-89	EASTERN KY TEACHERS NETWORK/FOXFIRE	051589	300	0	ARC	6000	94000	25000
10174-89S	EASTERN KY TEACHERS NETWORK TECHNICAL ASST.	090189	300	0	ARC	0	21000	35000
10175-88	WHOLE TOWN ECON.DEVEL.PROJ-MONTGOMERY CO.FY CT	111688	300	0	ARC	0	7500	30000
10200-89	APPALSHOP EDUCATIONAL MEDIA PROJECT	120788	300	0	ARC	0	26585	25000
10210-89	KY ENERGY CABINET,CMTY.DEVEL.IN COALFLDS.PROJ.	030689	300	0	ARC	0	0	75000
10217-89	WINCHESTER INDUSTRIAL PARK DEVELOPMENT	050189	214	750000	COMMERCE	0	371469	350000
10249-89	GRAYSON GAS SYSTEM RESTORATION & EXT.	092989	214	0	USDA	0	1650000	300000
10250-89	HIMA-SIBERT WATER SYSTEM ADDITIONS&IMPROVMNTS.	041089	214	216000	USDA	0	36000	250000
10254-89	FOREST PRODUCTS INDUSTRY DEVEL.COORDINATOR	091189	300	0	ARC	50000	0	50000
10266-89	MORRIS HILL WATER PROJECT	050189	214	0	HUD	0	80000	80000
10267-89	KRADD REGIONAL WATER SYSTEM FEASIBILITY STUDY	071389	300	0	ARC	15000	60000	75000
10268-89	FORWARD 5TH DDG.STRNG.FNDTNS.PROPOSAL CPCTY.BD	081789	300	0	ARC	0	261551	50000
10292-89	UNIV.KY APPAL.PROCUREMENT ASST. PROGRAM	091189	300	0	ARC	26297	23784	50000
10293-89	DENTAL CARE FOR APPALACHIAN CHILDREN	060889	202	0	HHS	0	100000	130000
10308-89	STEARNS OFFICE BUILDING ACQUISITION	062289	214	0	INTERIOR	10000	28000	61250
10315-89	CHILDREN'S TRAVELING DIABETES CLINIC	071389	202	0	ARC	0	25777	25778
10316-89	CLAY CNTY.CRAWFISH ALTERNATE SEPTIC TANK SYS.	051589	214	7060	HUD	0	20700	27760
10325-89	SCIENCE HILL SEWER SYSTEM	061589	214	402400	USDA	565000	629600	250000
10346-89	EASY CASEY COUNTY WATER EXPANSION PROJECT	081789	214	0	USDA	0	1307500	500000
10378-89	ESTILL COUNTY WATER SYSTEM IMPROVEMENTS	090189	214	0	USDA	0	221210	206624
10379-89	PERRY COUNTY GARBAGE PACKERS	072689	214	0	USDA	0	118400	118400
10380-89	KNOTT COUNTY SOLID WASTE PROGRAM	072689	214	0	USDA	0	55000	55000
10439-89	RICHMOND INDUSTRIAL PARK SOUTH.MADISON COUNTY	090789	214	275000	HUD	0	400000	400000
10461-89	KY LITERACY EQUIPMENT PROGRAM	091489	300	0	ARC	0	56250	225000
10462-89	ELLIOTT COUNTY WATER IMPROVEMENT PROJECT	092989	214	0	USDA	0	818200	300000
KENTUCKY	TOTAL							$8,335,422

MARYLAND

PROJECT NO	PROJECT NAME	DATE APPROVED	SECT	OTHER FEDERAL FUNDS	BASIC FEDERAL AGENCY	STATE FUNDS	LOCAL FUNDS	ARC FUNDS
09235-89	TRI-CTY.CNCL.REVOLVNG LOAN FUND RECAPITALIZAT	091189	300	0	ARC	0	210000	210000
09984F-88	THE REGL.EDUC.SERV.AGCY.APPAL.MD LITERACY PROJ	022789	300	0	ARC	0	0	5000
10039-88	MD FEXIBLE MANUFACTURING TECH.TRNSF.BUS.&IND.	011289	300	0	ARC	1230390	30600	144000
10039-88 +	MD FLEXIBLE MANUFACTURING TECH.TRNSF.BUS.&IND.	011289	300	0	ARC	0	0	56000
10201-89	INFRASTRUCTURE DEVEL.HAGERSTOWN BUSINESS PARK	011889	214	1000000	COMMERCE	0	420000	250000
10428-89	DEEP CREEK LAKE SEWAGE STORAGE FACILITY	090589	214	0	USDA	0	510310	510310
10429-89	FROSTBURG BUSINESS DEVEL.-ALLEGANY CTY.IND.BLD	090589	214	300000	HUD	0	344950	555750
MARYLAND	TOTAL							$1,731,060

MISSISSIPI

PROJECT NO	PROJECT NAME	DATE APPROVED	SECT	OTHER FEDERAL FUNDS	BASIC FEDERAL AGENCY	STATE FUNDS	LOCAL FUNDS	ARC FUNDS
07763-89	MS CONSOLIDATED TECHNICAL ASSISTANCE GRANT	070589	300	0	ARC	175000	0	175000
09488-86R	MS ITAWAMBA/LEE INDUSTRAL COMPLEI-PHASE II	080489	300	0	HUD	0	0	295482
09490-89	N.E.MS MINORITY/FEMALE BUSINESS DEVEL. FUND	071889	300	0	ARC	0	400000	200000
09492-89	MS-THREE RIVERS PDD ENTERPRISE DEV REV LN	050889	300	0	ARC	400000	0	400000
09702-87	CREEK AREA WATER SYSTEM- TOWN OF BROOKSVILLE	112188	214	0	USDA	0	104900	116500
09707-87	SALTILLO SEWER SYSTEM	111488	214	1102224	EPA	250000	433682	219800
C9953-88	MS TECHNOLOGY TRANSFER	112188	300	0	ARC	26500	0	100000
09982-88	TOWN OF ACKERMAN WASTER IMPROVEMENTS	111488	214	0	HUD	0	265000	215000
09984J-88	MS ADULT LITERACY PROJECT - MOBILE LAB	032789	300	0	ARC	0	0	20000
09988-89	NEW ALBANY ALTERNATIVE SCHOOL	090789	300	0	ARC	41400	20600	62000
10055-88	DEKALB SOLID WASTE LANDFILL	101188	214	454870	HUD	0	80168	75000
10194-89	MANTACHIE INDUSTRIAL PARK DEVELOPMENT - MS	120988	214	0	HUD	0	70000	70000
10215-89	N.E.MISSISSIPI WATER SUPPLY-LATERAL I PHASE II	032189	300	1211000	HUD	0	162000	487000
10282-89	EAST CENTRAL MS PDD REVOLVING LOAN FUND	051589	300	0	ARC	0	316000	158000
10321-89	PRESTISS CNTY HIGH SCH.NEW SITE SCIENCE EQUIP.	060789	300	0	ARC	0	0	25942
10324-89	HOUSTON WASTEWATER TREATMENT FACILITIES IMPROV	092189	214	0	USDA	0	230000	200000
10339-89	RIPLEY-TIPPAH CTY.NORTH IND.PARK IMPROVEMENTS	090789	214	550000	EPA	0	220000	330000
10340-89	HOLLY SPRINGS WTR.SUPPLY&TRTMNT IMPROVEMENTS	082989	214	0	HUD	0	109000	109000
10349-89	OKOLONA WASTEWATER FACILITIES IMPROVEMENTS	082989	214	0	USDA	0	605000	175000
10352-89	REFORM WATER SYSTEM IMPROVEMENTS	081589	214	0	USDA	0	169000	200000
10354-89	FULTON GENESIS PROJECT	090789	214	0	HUD	0	135000	135000
MISSISSIPPI	TOTAL							$3,768,724

NEW YORK

PROJECT NO	PROJECT NAME	DATE APPROVED	SECT	OTHER FEDERAL FUNDS	BASIC FEDERAL AGENCY	STATE FUNDS	LOCAL FUNDS	ARC FUNDS
07776-88R	NY CONSOLIDATED TECHNICAL ASSISTANCE PROGRAM	011889	300	0	ARC	0	0	52000
07776-89	NY CONSOLIDATED TECHNICAL ASSISTANCE PROGRAM	093089	300	0	ARC	145000	135000	280000
08907-86	NY HOUSING REVOLVING LOAN FUND PRG	101188	300	0	ARC	0	100000	100000
09967-88	NEW YORK TECHNOLOGY TRANSFER PROGRAM	112188	300	0	ARC	0	69275	99887
10068-89	STW PROFESSIONAL SKILLS DEVEL.&RETENTION PROG.	081589	300	0	ARC	0	107000	88600
10071-88	TRAINING FOR TRANSIT CAR REMANUFACTURING	101188	211	0	ED	0	221425	150000
10079-88	BOURNE STREET INFRASTRUCTURE IMPROVEMENT	120988	214	0	USDA	135000	282000	150000
10083-88	HOUGHTON WATER DISTRICT WATER SYSTEM IMPROVMNT	111688	214	0	USDA	0	344000	120000
10126-88	JONES AND GIFFORD SANITARY SEWER	061289	214	0	HUD	0	420000	150000
10127-88	NY APPALACHIAN COMMUNITY ADVISORS PROGRAM	111688	300	0	ARC	60000	60000	120000
10189-89	DELAWARE&HUDSON RAIL LAND ACQUISTION	042489	214	0	HUD	0	142800	142800
10283-89	SUNY RSCH.FOUNDATION SMALL BUS.START-UP SERIES	090789	300	0	ARC	20982	790	21726
10285A-89	SOUTHERN TIER EAST WORKPLACE LITERACY PROGRAM	071389	300	0	ARC	0	76532	65000
10285B-89	SOUTHERN TIER EAST WORKPLACE LITERACY PROGRAM	071389	300	0	ARC	0	75421	65000
10285C-89	SOUTHERN TIER CENTRAL WORKPLACE LITERACY PROG.	071389	300	0	ARC	0	66026	65000
10286-89	INDUSTRIAL WASTE REDUCTION PROJECT	081889	300	0	ARC	0	60791	50000
10288-89	NY STATE EDUCATIONAL ENHANCEMENT PROGRAM	091189	300	0	ARC	4017	22736	22743
10320-89	CHENANGO CTY.IDA AIRPORT IND.PARK INCUBATOR	081789	214	0	USDA	100000	350000	150000
10372-89	HORNELL PARK ROAD COMMERICAL DEVELOPMENT	083089	214	0	HUD	0	5049672	150000
10402-89	DRESSER RAND CMPRHNSV.TRNG.PROG.JTWN.CMTY.COLL	081789	211	0	ED	0	979782	175000
10403-89	COMPUTER SKILLS TRAINING PROG.CHALLENGE INDUST	080889	211	0	ED	7800	44760	52558
10404-89	HOBART DAY CARE CTR.&FAMILY DAY CARE DEVEL.	071889	202	8442	HHS	0	66763	59740
10406-89	COMPUTER ASSISTED INST.BASIC SKILLS PROGRAM	083089	211	35428	ED	0	51214	56925
10430-89	IRA DAVENPORT HOSP.SPEC.TRNG.SKILLED NRSG.FACI	072689	211	32613	ED	5400	159941	71232
10431-89	HOBART WASTEWATER SYSTEM IMPROVEMENTS	083089	214	1000000	COMMERCE	750000	197000	150000
10432-89	CORNING COMMUNITY COLLEGE BASIC SKILLS TRAING.	072689	211	0	ED	0	59370	56694
10433-89	VOCATIONAL REHABILITATION SERV.INCUBATOR TRNG.	080889	211	0	ED	103760	158798	115000
10434-89	TOMPKINS/CORTLAND CMTY.COLL.DAIRY FARM TRNG.	080889	211	0	ED	0	64557	59779
10435-89	CATTARAUGUS/ALLEGANY BOCES FOREST PROD.TRNG.	080889	211	25733	ED	54352	85831	125000
10440-89	J.M.MURRAY CENTER RENOVATION	091189	211	0	ED	0	214100	150000
10458-89	CORNING COMMUNITY COLL.DRESSER-RAND TRNG.PROJ.	091189	211	0	ED	0	104804	92400
NEW YORK	TOTAL							$3,207,084

NORTH CAROLINA

PROJECT NO	PROJECT NAME	DATE APPROVED	SECT	OTHER FEDERAL FUNDS	BASIC FEDERAL AGENCY	STATE FUNDS	LOCAL FUNDS	ARC FUNDS
07760-89	NORTH CAROLINA'S CONSOLIDATED WORK PROGRAM	081789	300	0	ARC	350000	0	350000
09761-88+	FOREST CITY INDUSTRIAL WATER&SEWER IMPROVEMNTS	100688	214	0	HUD	0	1099850	150000
09911MM-89	ALEXANDER CNTY SCH.SYS.EAST ALEX.PARENTING PRJ	112188	300	0	ARC	0	0	10000
10031-89R	MACON CNTY.WATER&SEWER EXT.TO WELCOME CENTER	051589	300	0	ARC	0	29597	29597
10048-88	NC BUSINESS TECHNOLOGY CN7R.CAPITAL FUND DEVEL	100488	300	0	ARC	0	50000	50000
10050-88	MARSHALL WATER & SEWER IMPROVEMENTS	111488	214	1069578	COMMERCE	0	333684	200000
10051-88R	MCDOWELL CNTY SCHS.DROPOUT RETRIEVAL PROG.	083089	300	0	ARC	0	0	9138
10245-89	GRANITE FALLS INDUSTRIAL WATER/SEWER PROJECT	050889	214	0	USDA	50000	48450	98450
10246-89	LEE-I/S/ 601 ELEVATED WATER STORAGE TANK	050889	214	0	USDA	0	689000	200000
10269-89	RETIREMENT IN-MIGRATION INFLUENCE LOC.ECON.DEV	052389	300	0	ARC	0	29139	111675
10270-89	NORTH CAROLINA INFANT MORTALITY REDUCTION PROG	062389	300	0	ARC	0	125000	500000
10322-89	SUPPORT OF ADV.MFG.TECHNOLOGY IN LOCAL IND.	050989	300	25000	ARC	0	0	40000
10333-89	HAYESVILLE WATER & SEWER IMPROVEMENTS	070589	214	0	USDA	68188	287817	200000
10400-89	ISOTHERMAL CMTY COLLEGE-WORKPLACE LIT PROG	071389	211	0	ED	10575	10008	9400
10408-89	AVERY CREEK WATER TANK	081789	214	0	USDA	0	170520	170520
10409-89	CANE CREEK WTR.&SWR.DIST.COLLECTOR SWRS.PHS.II	090189	214	614715	USDA	157922	587215	200000
10410-89	COLUMBUS WATER & SEWER PROJECT	090189	214	0	USDA	0	20700	20700
10411-89	FOREST CITY RAW WATER INTAKE IMPROVEMENTS	083089	214	0	USDA	0	93750	93750
NORTH CAROLINA	TOTAL							$2,443,230

OHIO

PROJECT NO	PROJECT NAME	DATE APPROVED	SECT	OTHER FEDERAL FUNDS	BASIC FEDERAL AGENCY	STATE FUNDS	LOCAL FUNDS	ARC FUNDS
04812+7	OHIO HOUSING REGIONAL PROGRAM INITIATIVE	072689	207	0	ARC	0	0	150000
07781-89	OH'S CONSOLIDATED TECHNICAL ASSISTANCE GRANT	083089	300	0	ARC	78075	331925	410000
09837-89	BH-HVRD PROCUREMENT TECHNICAL ASSISTANCE PROGR	081089	300	0	ARC	20000	6500	26500
10098-88	GALLIPOLIS CNTL.BUS.DIST.IMPROV.PROG.STRSCAPE	012389	214	111000	HUD	0	558919	212000
10294-89	MT. ORAB WATER SYSTEM EXPANSION	052589	214	192000	HUD	40000	75000	110000
10295-89	ZENESVILLE-MUSKINGUM CTY.PORT AUTH.BLDG.RENOVA	050189	214	0	HUD	50000	62500	112500
10296-89	BH-HVRDD REVOLVING LOAN FUND	070589	300	0	ARC	0	200000	200000
10336-89	EAST HOLMES INDUSTRIAL PARK	090189	214	0	USDA	0	478200	300000
10353-89	ROANOKE WATER SYSTEM IMPROVEMENTS-PHASE III	072689	214	20000	HUD	0	140000	160000
10382-89	PORTSMOUTH DOWNTOWN IMPROVEMENTS PROGRAM	072689	214	25000	HUD	0	1822191	300000
10383-89	SOUTHEASTERN OH TELECOMMUNICATIONS CONSORTIUM	091189	211	0	ED	0	100000	300000
10384-89	MEIGS LOC. SCH.DIST.- VOC ED EQUIP.AUTO MECH	090789	211	0	ED	35518	23678	59196
10385-89	MEIGS LOC.SCH.DIST.- COMPUTER LAB EQUIPMENT	090789	211	0	ED	0	15000	14993
10456-89	PIKE RURAL WATERLINE EXTENSION	090189	214	0	HUD	0	21600	86400
OHIO	TOTAL							$2,441,589

PROJECTS PROPOSED FOR FUNDING FROM ADJUSTED AREA DEVELOPMENT AND DISTRESSED COUNTY ALLOCATIONS

The project proposals listed below are contained in the state investment program for FY 1990. On adoption of the program by the Appalachian Regional Commission, these proposals will be eligible for consideration for Appalachian funding. Final approval of an individual project application is subject to the availability of funds and its conformance to the operating laws and of the Appalachian Regional Commission. Projects with no asterisks appear approvable under such laws and policies. Projects with single asterisks have unresolved issues, as set forth in the detailed staff review of the program.

ALABAMA

AREA DEVELOPMENT	Estimated ARC Funds
Technical Assistance, Studies and Demonstrations	
Alabama Consolidated Technical Assistance Grant, Multi County	$ 110,000
Cherokee County Interstate Highway Economic Impact Study	7,500
Rural Wastewater Treatment Plan (RPI)	210,000
Alabama Technology Assistance Partnership (RPI)	200,000
Model Dropout Prevention Program Technical Assistance	14,709
Statewide Model for Employee Assessment *	160,000
Alabama Airport Development (RPI)	100,000
Community Infrastructure and Industrial Development	
Remlap Pine Mountain Water Line Extension, Blount County *	$ 200,000
Blount Mountain Water Line Extension, Blount County *	200,000
Cullman Infrastructure Improvements, Cullman County	200,000
DeKalb-Jackson Counties Water System Improvements *	200,000
Fayette Water and Sewer System Improvements, Fayette County	200,000
Bridgeport Water and Sewer System Improvements, Jackson County *	200,000
Leeds Sewer System Improvements, Jefferson County (AL-10223) *	129,450
Warrior Sewer System Improvements, Jefferson County *	160,000
Kennedy Sewer Collection System (Phase I), Lamar County *	200,000
Athens Infrastructure Improvements, Limestone County *	100,000
Moundville Water Storage Facility, Tuscaloosa County *	200,000
Echola Water Line Extension, Tuscaloosa County *	175,000
Parrish Wastewater System Improvements, Walker County *	200,000
Carbon Hill Sewer System Improvements, Walker County	200,000
Sumiton Sewer Line Extension (Bryan Road), Walker County	200,000
Attalla Rail Spur, Etowah County *	184,000
Gadsden Access Road, Etowah County *	75,000
Red Bay Industrial Site Improvements, Franklin County	200,000
Trussville Industrial Park Improvements, Jefferson County *	163,191
LaFayette Rail Spur, Chambers County *	84,000
Hanceville Industrial Park Improvements, Cullman County *	200,000
Russellville Water System Improvements, Franklin County	200,000
Arley Water System Improvements, Winston County	200,000
Sand Mountain Wastewater Collection, Jackson County *	100,000
Senior City USA (Sheffield), Colbert County	96,800
Rural Dry Fire Hydrants for Rural Fire Protection *	175,000
Huntsville Industrial Park Improvements, Madison County (AL-9994)	200,000
Rockford Sewer System Improvements, Coosa County (AL-9778)	200,000

	Estimated ARC Funds
Education	
Cherokee County Dropout Prevention Program	$ 157,600
Cullman County Vocational-Technical Training Program Equipment*	100,000
Wallace State Community College Advanced Technology Training Programs, Cullman County*	198,185
Health	
Rural Health Partnership for Cherokee County	$ 48,000
Health Manpower Recruitment/Infant Mortality Reduction, Cherokee County*	200,000
Obstetrician Recruitment, DeKalb County*	55,800
DISTRESSED COUNTIES	
Gnatville/Spring Garden Water Line Extension, Cherokee County*	$ 100,000
Chilton County Water Storage Facility (AL-10288)*	200,000
Maplesville Water Storage Facility, Chilton County (AL-10231)	150,000
Clanton Industrial Site Water Storage, Chilton County (AL-10211)*	170,100
Millerville Water Line Extension, Clay County *	184,075
Ashland Sewer Line Extension (Westside), Clay County (AL-10213) *	179,012
Moulton Water System Improvements, Lawrence County	200,000
Moulton Wastewater System Improvements, Lawrence County	200,000
Gordo Wastewater System Improvements, Pickens County *	200,000
Roanoke Gas Line Extension, Randolph County	200,000
Wadley Sewer System Extension, Randolph County (AL-10228) *	114,000
Lincoln Water Storage Facility, Talladega County *	60,000
Talladega Water Line Extension (Jackson's Trace), Talladega County *	122,476
Talladega County Water System Improvements*	200,000
Central Talladega County Water System Development	200,000
Oak Grove Sewer System Extension, Talladega County *	200,000

GEORGIA

AREA DEVELOPMENT	Estimated ARC Funds
Technical Assistance	
DCA Consolidated Technical Assistance, Multi County	$ 257,775
Water, Sewer, Industrial and Community Development	
Banks County Water System *	$ 200,000
Calhoun Sewer Line Additions, Gordon County	200,000
Carnesville Water Line, Franklin County	200,000
Chatsworth Sewer Line Extension, Murray County	200,000
Dillard Sewer System Improvements, Rabun County *	200,000
Dawsonville Waterline, Dawson County (GA-10390)	200,000
Franklin County Water and Sewer System Improvements	200,000
Jefferson Water System Improvements, Jackson County *	200,000
Mineral Bluff Water Line, Fannin County*	61,500
Tallapoosa Water and Sewer System Improvements, Haralson County	200,000
Housing	
GRFA Housing Fund, Multi County	$ 200,000
Education	
Gordon County Adult Literacy	$ 23,500
Murray County Dropout Prevention	26,500

PENNSYLVANIA

PROJECT NO	PROJECT NAME	DATE APPROVED	SECT	OTHER FEDERAL FUNDS	BASIC FEDERAL AGENCY	STATE FUNDS	LOCAL FUNDS	ARC FUNDS
07752-88	PA ECONOMIC DEV.ACTION GRANT DEMONSTRTN.PROG.	091189	300	0	ARC	350000	0	1500000
07784-88	PA CONSOLIDATED TECH. ASST. PROGRAM	112188	300	0	ARC	0	0	50800
07784-88R	PA CONSOLIDATED TECH. ASST. PROGRAM	030689	300	0	ARC	0	0	195625
07784-88R2	PA CONSOLIDATED TECH. ASST. PROGRAM	070589	300	0	ARC	0	0	41469
07784-88R3	PA CONSOLIDATED TECH. ASST. PROGRAM	081489	300	0	ARC	0	0	13000
07784-89	PA CONSOLIDATED TECH. ASST. GRANT	091189	300	0	ARC	350000	0	350000
08285-89	NWPRPDC ENTERPRISE DEVELOPMENT PROGRAM	072689	300	50000	ARC	175000	150000	375000
08290-89	SEDA-COG ENTERPRISE DEVELOPMENT PROGRAM	080889	300	95000	ARC	195000	85000	375000
08291-89	ECON.DEV.CNCL.N.E.PA ENTERPRISE DEV.PROG.	081589	300	113000	ARC	190250	142687	375000
08304-88	S.ALLEGHENIES ENTERPRISE DEVELOPMENT PROGRAM	100688	300	0	ARC	196962	23438	220400
08304-89	S.ALLEGHENIES ENTERPRISE DEVELOPMENT PROGRAM	081589	300	155800	ARC	206000	13200	375000
08305-89	NTRPDC ENTERPRISE DEVELOPMENT PROGRAM	072689	300	125775	ARC	46725	35000	207500
08312-89	NORTH CENTRA:PDC ENTERPRISE DEVELOPMENT PROGR.	081589	300	0	ARC	0	250000	250000
09882-88	ECON.DEVEL.RSCH & TRNG.PROGRAM-PHASE II	021089	300	0	ARC	265400	0	265000
09882-89	ECON.DEVEL.RSCH & TRNG.CENTER-PHASE III	081789	300	0	ARC	365165	0	365165
09972B-88	SEDA CNCL.GOVERNMENT PA TECH.TRANSFER INITIATI	112388	300	0	ARC	0	9060	36240
09972C-88	N.E. PA NEEDS ASSESS STUDY FOR TECHNOLOGY	112188	300	0	ARC	0	9690	38760
10007-88	METROPOLITAN GOVERNMENT SERV.FEASIBILITY STUDY	111688	300	0	ARC	0	50000	50000
10101-88	SOUTHERN ALLEGHENIES MINORITY BUS.ENTRPRS.CTR.	090789	300	0	ARC	0	40000	40000
10103-88	HAY GROWER'S COOPERATIVE FEASILILITY STUDY	021089	300	0	ARC	0	27753	17576
10110-88	PA HARDWOOOD INITIATIVE	071589	300	0	ARC	211566	0	199500
10114-88	AVTEX MULTI-TENANT INDUSTRIAL FACILITY	082989	214	0	USDA	300000	0	298500
10116-88	PUTNAM TOWNSHIP SEWER LINE EXTENSION	112188	214	984000	USDA	60000	975200	200000
10191-89	UNIV.SCRANTON ENGINEERING.TECH.&SCIENCES RESCS	091189	300	100000	ARC	0	210725	350000
10209-89	WRKPLC.BAS.SKILLS-PUB.LIBR.JOB TRNG&EDUC.CNTR.	071389	300	137505	ARC	252894	0	376907
10218-89	NE PA IND.RESOURCE CTR.TECHNLGY.ENHANMNT.PROJ.	072689	300	0	ARC	100000	200000	200000
10248-89	PENNSYLVANIA EXPORT PARTNERSHIP SYSTEM	081789	300	0	ARC	280000	0	280000
10261-89	WINDFALL ROAD SEWER EXTENSION	090789	214	130000	HUD	300000	54500	25500
10265-89	INDIAN HAVEN INTELLIGENCE PARK PROJECT	091289	214	54000	COMMERCE	0	320000	250000
10274-89	ENTREPRENEURSHIP EDUCATION K-12	080889	300	0	ARC	0	152500	152500
10275-89	HOMEWOOD-BRUSHTON OFFICE INCUBATOR	091189	300	0	ARC	0	295000	65000
10277-89	MINORITY ENTERPRISE PARTNERSHIP	072689	300	0	ARC	0	225000	100000
10299-89	ST.MARY'S SYMPOSIUM ON CERAMIC &POWDERED METAL	070789	300	0	ARC	0	30000	30000
10301-89	PA PARENTS IN WRKPLC.CHLD.CARE ASST.NEEDS.SRVY	092989	300	0	ARC	0	0	10000
10302-89	PA GOV'S ECON.DEVEL.RAPID RESPONSE TEAM	080889	300	0	ARC	60000	0	60000
10327-89	KISKI VALLEY INDUSTRIAL PARK SITE	081789	214	0	USDA	0	292400	292400
10332-89	OIL CITY INDUSTRIAL PARK WATER LINE	091589	214	0	USDA	120000	24000	144000
10377-89	GLASSPORT INDUSTRIAL AREA RAIL CROSSING	081589	214	100000	HUD	0	180000	120000
10392-89	JENKS TOWNSHIP SANITARY SEWAGE SYSTEM	091589	214	415000	HUD	0	900600	156400
PENNSYLVANIA	TOTAL							$8,452,242

SOUTH CAROLINA

PROJECT - NO	PROJECT NAME	DATE APPROVED	SECT	OTHER FEDERAL FUNDS	BASIC FEDERAL AGENCY	STATE FUNDS	LOCAL FUNDS	ARC FUNDS
07774-89	SC CONDOLIDATED TECH. ASST. GRANT	072689	300	0	ARC	35432	0	35432
09984B-88	SPARTANBURG AWARE INC.RECRTMNT TEAM TARGET POP	112388	300	0	ARC	0	0	4000
09984D-88	GREENVILLE LITERACY ASSOC.,INC.ADULT LIT.PROG.	112188	300	0	ARC	0	0	10850
09984D-88+	GREENVILLE LIT. ASSN.- ADULT LITERACY PROGRAM	081089	300	0	ARC	0	0	5085
10034-88	SCACOG REVOLVING LOAN FUND	101288	300	0	ARC	500000	0	1000000
10036-88	GRASSY POND WATER SYSTEM IMPROVEMENT(PEELER RU	100688	214	0	HUD	90300	62000	152500
10037-88	SENECA WATER PLANT UPGRADE	042489	214	0	USDA	150000	340000	300000
10252-89	DONALDSON CENTER GENERAL AVIATION RAMP&AWOS SY	042489	214	0	DOT	189840	189840	162720
10253-89	SC.INFRASTRUCTURE/ECONOMIC DEVEL.PLNG.PROJECT	050289	300	0	ARC	0	0	50000
10253A-89	SC INFRASTRUCTURE/ECONOMIC DEVEL.PLNG.PROJECT	050289	300	0	ARC	316000	0	181300
10310-89	OCONEE COUNTY ISS SEWER LINE PROJECT	050189	214	0	USDA	115500	0	115500
10441-89	TRAVELERS REST INDUSTRIAL SEWER	072689	214	0	HUD	0	401600	172200
10442-89	LAKE ROAD INDUSTRIAL SEWER	080889	214	0	HUD	0	462000	198000
10443-89	CLERK ROAD WATER LINE	091189	214	0	HUD	17000	54750	71750
10444-89	GREER WASTER STORAGE FACILITY	081789	214	0	USDA	100000	575000	275000
10446-89	ANDERSON COUNTY SEWER LINE PROJECT	080889	214	79500	HUD	0	53000	132500
10447-89	BLACKSBURG I-85/HIGHWAY #198 WATER&SEWER	081789	214	250000	HUD	150000	300000	150000
10448-89	HAMILTON CAREER CTR.GRAPHIC COMMUNICATION EQP.	090589	211	0	ED	0	59000	58806
10449-89	SPRTNBRG.TECH.COLL.ELCTRNC.ENGRNG.TECHGY.EQUIP	091189	211	0	ED	0	57112	57112
10450-89	SPARTANBURG TECH.COLL.IND.MAINTNC.MECH.EQUIP.	091189	211	0	ED	0	87555	87555
10451-89	GRNVL.TECH.COLL.ENGNRG.TECHNLGY.INST.EQUIP.	091189	211	0	ED	0	293456	125767
10452-89	GREENVILLE TECH.COLL.IND.TECHNLGY.INSTR.EQUIP.	091189	211	0	ED	0	152979	65563
10453-89	TRI-CTY.TECH.COLL.IND.&BUS. DEV.CTR.INSTR.EQUI	090789	211	0	ED	0	187891	147629
SOUTH CAROLINA TOTAL								$3,559,269

TENNESSEE

PROJECT NO	PROJECT NAME	DATE APPROVED	SECT	OTHER FEDERAL FUNDS	BASIC FEDERAL AGENCY	STATE FUNDS	LOCAL FUNDS	ARC FUNDS
07783-89	TENNESSEE CONSOLIDATED TECHNICAL ASST. GRANT	072689	300	0	ARC	317300	0	194700
09797-87	JACKSON COUNTY WATER MAIN EXTENSION PROJECT	090789	214	56000	HUD	0	100600	156600
09808-89	TN ADULT LITERACY PROGRAM	051589	300	0	ARC	0	125000	500000
09934-88	INDIGENT HLTH.CARE PROPOSAL-REOPEN.JOHNSON CO	072189	300	0	ARC	0	0	77280
09971-88	TENNESSEE TECHNOLOGY TRANSFER PROGRAM	011689	300	0	ARC	0	0	98300
09984C-88	PUTNAM CNTY.ADULT LITERACY PILOT PROGRAM - TN	012389	300	0	ARC	0	0	3000
09984I-88	OVERTON COUNTY LIBERACY PROGRAM - TN	031789	300	0	ARC	0	0	6000
10061-88	SCOTT CNTY.INDUSTRIAL SITE INFRASTRUCTURE PROJ	100688	214	0	HUD	0	278600	278600
10064-88	BLOUNT COUNTY INDUSTRIAL INFRASTRUCTURE PROJ.	020389	214	215950	HUD	0	180800	253241
10153-88	AQUISITION COMP.ASST.ECON.DEV.PLNG.PRGRMMNG	111888	300	0	ARC	0	0	50000
10216-89	CLAIBORNE CNTY.WATER SYSTEM IMPROVEMENTS	032089	214	0	USDA	0	1668000	800000
10281-89	LOUDON CTY.INDUSTRIAL LOCATION(KIMBLRLY-CLARK)	083089	214	750000	COMMERCE	0	673800	500000
10335-89	MOUNTAIN CITY MEDICAL CLINIC - TN	070589	202	0	HHS	0	20380	24620
10343-89	BIG CREEK UTILITY DIST.WATER PLANT IMPROVEMENT	083089	214	0	USDA	0	268000	500000
10373-89	PHIPPS BEND INDUSTRIAL DIST.SANITARY SEWER SER	083089	214	500000	COMMERCE	128530	269370	897900
10374-89	POLK COUNTY INDUSTRIAL PARK SEWER (BENTON)	090189	214	0	HUD	69570	85030	618400
10412-89	CENTER FOR ADVANCED SPACE PROPULSION	090189	300	0	ARC	320000	0	525000
10438-89	WARREN COUNTY BRIDGESTONE INDUSTRIAL LOCATION	083089	214	0	USDA	1500000	1595000	500000
TENNESSEE	TOTAL							$5,983,641

VIRGINIA

PROJECT NO	PROJECT NAME	DATE APPROVED	SECT	OTHER FEDERAL FUNDS	BASIC FEDERAL AGENCY	STATE FUNDS	LOCAL FUNDS	ARC FUNDS
07782-88R	VIRGINIA CONSOLIDATEDVIRGINIA CONSOLIDATED TEC	102488	300	0	ARC	40000	0	40000
07782-89	VIRGINIA'S CONSOLIDATED TECH.ASST.WORK PROGRAM	071389	300	0	ARC	22016	0	20000
09433-89	VA DEPT. OF HEALTH RESOURCE MOTHERS PROGRAM	072589	202	0	HHS	50000	0	50000
09744-87R	WASHINGTON COUNTY INDUSTRIAL PARK SEWER SYSTEM	050889	214	0	USDA	276079	487637	433910
09961B-88	EXPANSION VA PARTICIPATION CONSORTIUM MNFCTRG.	112188	300	0	ARC	0	0	38514
09961BB-88	EXPANSION VA PARTICIPATION-CONSORTIUM MNFCTG	112188	300	0	ARC	0	37500	61486
09992-88	CARROL COUNTY INDUSTRIAL PARK	091189	214	0	HUD	1000000	200000	500000
10018-89	ALLEGHANY COUNTY INDUSTRIAL PARK	080889	214	0	HUD	0	125725	125725
10019-88	FAIRVIEW WATER SYSTEM	100688	214	300000	HUD	0	200000	500000
10247-89	NEW RIVER COMMUNITY COLL.TECH.TRANSFER PROJ.	050189	300	0	ARC	0	105909	59450
10256-89	CUMBERLAND PLATEAU INDUTRIAL PARK/ RUSSELL CO	052589	214	700000	HUD	450000	0	500000
10311-89	DICKENSON CNTY.INDUSTRIAL DEVEL.PROJECT	071389	214	0	HUD	585140	1036640	500000
10312-89	SMYTH COUNTY INDUSTRIAL SITE DEVELOPMENT PROJ.	042589	214	0	HUD	0	157086	157086
10323-89	BEN HUR SEWER LINE EXT.SULFUR SPRGS.&TRAILR.PK	081789	214	0	HUD	0	97125	354621
10329-89	BIG STONE GAP INDUSTRIAL PARK SEWER	061589	214	0	HUD	0	32825	32825
10330-89	COEBURN NORTON/WISE REGIONAL WASTEWATER SYS.	052589	214	700000	HUD	10403850	1173050	500000
10389-89	PENNINGTON GAP SEWER PROJECT	091189	214	700000	HUD	2749000	0	500000
VIRGINIA	TOTAL							$4,373,617

WEST VIRGINIA

PROJECT NO	PROJECT NAME	DATE APPROVED	SECT	OTHER FEDERAL FUNDS	BASIC FEDERAL AGENCY	STATE FUNDS	LOCAL FUNDS	ARC FUNDS
07762-89	WV CONSOLIDATED TECHNICAL ASSISTANT GRANT	071389	300	0	ARC	50000	0	50000
09863-87	TOWN GRANTSVILLE WATER SERVICE EXTENSION	042489	214	0	USDA	0	80000	319000
09970B-89	TECH.ASST.WV WRITING TO READ LABORATORIES(AEL)	110388	300	0	ARC	0	0	60990
10132-88	MCDOWELL CTY.ECON.DEV.AUTH.TECH.MRKT.AST.PROJ.	101188	300	0	ARC	0	11000	30000
10134-89	WV SCHOLARS ACADEMY.WOODLANDS MOUNTAINS INST.	071389	300	0	ARC	0	137000	133000
10136-88	SUMMERSVILLE ROUTE 19 ECON.DEVEL. CTR.UPGRADNG	102188	214	1000000	COMMERCE	0	875180	604820
10137-88	WELCH WATER IMPROVEMENTS	110488	214	0	USDA	0	33008	132032
10138-88	CAPON BRIDGE WATER SYSTEM IMPROVEMENT	102188	214	0	USDA	0	109750	109750
10140-88	OCEANA SEWAGE TREATMENT PLANT IMPROVEMENTS	061589	214	0	USDA	0	6200	24000
10148-88	MORGAN CTY.SHOPPING CNTR.WATER/SEWER LINE EXT.	122288	214	0	USDA	0	90000	90000
10169-88	TOWN OF ALBRIGHT WATER LINE CONSTRUCTION	102188	214	0	HUD	0	210000	150000
10170-88	FLATWOODS-CANOE RUN PDS SUTTON-GASSAWAY SEWAGE	042489	214	4764420	USDA	0	2572000	1000000
10183-88	TECH ASST TEACHER NETWORKS, TN & WV	100588	300	0	ARC	0	0	75000
10193-89	WAR MEDICAL CLINIC OUTREACH PROGRAM, WV	101988	300	0	ARC	0	0	40000
10198-89	VALLEY HLTH.SYS.,INC.VOLUNTEER COORD.PROG. WV	110888	300	0	ARC	0	0	12000
10334-89	WV VIRGINIA RURAL HOSPITAL CONSORTIA	062389	300	0	ARC	7500	0	50050
10357-89	CAPITAL HIGH SCHOOL COMPUTER/VOICE NETWORKING	072689	300	0	ARC	0	200031	200031
10358-89	ARCATA IND.DEVEL.WTR.SUPPLY&STORAGE PROJECT	091289	214	0	USDA	0	380403	130403
10359-89	CUMBERLAND ROAD INDUSTRIAL PARK SEWER	090589	214	0	EPA	0	771600	750000
10362-89	CLAY WATER SYSTEM IMPROVEMENTS	091189	214	0	HUD	100000	0	400000
10363-89	MT.ZION PUBLIC SERVICE DISTRICT SEWER	091189	214	350000	USDA	0	225000	495000
10364-89	SMITHBURG WATER DISTRIBUTION SYSTEM	090589	214	0	HUD	0	84330	337320
10365-89	TUNNELTON WATER RENOVATION/EXPANSION	083089	214	600000	USDA	0	475000	720000
10366-89	HAMLIN RANGER WATERLINE EXTENSION	090589	214	112000	HUD	0	60000	448000
10368-89	CONSOLIDATED ALUMINUM BEN'S RUN RAIL SPUR	081589	214	0	USDA	0	144000	144000
10371-89	BAKER HGHTS.WWTP IMPROVEMENT/SERV.EXT.PROJECT	083089	214	1000570	EPA	1642430	0	450000
10371-89R	BAKER HGHTS.WWTP IMPROVEMENT/SERV.EXT.PROJECT	092189	214	0	EPA	50000	131500	81500
10398-89	ARCATA RAIL SPUR	083089	214	0	USDA	0	66774	22259
10426-89	REGION I PDC WASTEWATER ALTERNATIVE TECH.	091189	300	0	ARC	0	38905	98814
10457-89	MARSHALL UNIV. INDUST. TECHNOLOGY TRANSFER	092589	300	0	ARC	54642	0	45358
WEST VIRGINIA	TOTAL							$7,203,327

KENTUCKY

AREA DEVELOPMENT	Estimated ARC Funds
Regional Projects	
Operation READ, Kentucky Literacy Commission	$ 50,000
JUNE Appal Recordings, Phase V, Appalshop, Inc., Letcher County	35,000
Eastern Kentucky Teachers Network	50,000
Kentucky Dropout Prevention Program, KY Dept. of Education	600,000
Infant Mortality Reduction, KY Dept. for Health Services	250,000
Governor's Downtown Development and Revitalization Program	250,000
KY Rural Water Assoc., Inc. Circuit Rider Program	30,000
Kentucky Appalachian Housing Program	150,000
Bluegrass State Skills Corporation	42,131
Area Development District Projects	
Gamaliel Wastewater System, Monroe County	$ 354,776
DISTRESSED COUNTIES	
Dan Ridge Waterline, Frenchburg, Menifee County	$ 318,000
Pike County Solid Waste Landfill *	400,000
Flat Gap Waterline Extension, Paintsville, Johnson County *	50,000
Campton Sewer Treatment Plant Renovation, Wolfe County	296,000
Evarts/Kenvir Water Plant and Line Extension, Harlan County	150,000
Livingston Water Improvements and Extension, Rockcastle County	150,000
Catron Creek Waterline Extension, Harlan County	350,000
Jackson County Water Project	150,000
Albany Water System Improvements, Clinton County	250,000
Mount Victory Water Project, Pulaski County	250,000
Nada/Slade Water Extensions, Powell County	300,000
Hubble Rural Water Extension, Lincoln County	295,000
Rattlesnake Ridge Waterline Extension, Grayson County	400,000
Grayson Water Expansion, Carter County *	300,000
Wallins Creek Water Supply and Line Extension, Harlan County	200,000
Evarts/Kenvir Water Plant and Line Extension, Harlan County *	200,000

MARYLAND

AREA DEVELOPMENT	Estimated ARC Funds
Community Infrastructure and Revitalization, Enterprise Development and Transportation	
Allegany County Industrial Park/Federal Prison Wastewater Improvements	$1,300,000
Flexible Manufacturing Technology Transfer Program, Washington County	200,000
Northern Garrett Industrial Park, Garrett County	830,000
Allegany County Multi-Purpose Industrial Building	750,000
Southern Garrett Industrial Park, Block B	500,000
Garrett County Tourism Center *	500,000
Washington County Industrial Waste Treatment Facility *	1,000,000
Boonsboro Business Park, Washington County *	825,000
Business Revolving Loan Fund Recapitalization, Multi County (MD-9235) *	1,210,000
Washington County Regional Airport Multi-Modal Facility *	700,000
Hancock Industrial Park Development, Washington County *	700,000
Garrett County Airport Terminal Improvements *	342,500
Hagerstown Downtown Improvements, Washington County *	200,000
Gateway to Downtown Development Opportunity (Hagerstown), Wash. Co. *	153,500
Boonsboro Commercial Revitalization, Washington County *	180,000
Williamsport Commercial Revitalization, Washington County *	180,000
Hancock Commercial Revitalization, Washington County *	180,000
Edgemont Reservoir (Hagerstown), Washington County *	625,000

MISSISSIPPI

AREA DEVELOPMENT	Estimated ARC Funds
Mississippi Consolidated Technical Assistance Program	$ 175,000
Northeast Mississippi Planning and Development District	
Prentiss County Genesis Project	$ 100,000
Marshall County Genesis Project *	100,000
Alcorn County Genesis Project	100,000
Regional Initiatives	
Alcorn-Tishomingo County Geographic Information System Demonstration *	$ 175,000
Iuka Schools Computer Demonstration, Tishomingo County	20,000
N.E. Miss. Minority/Female Enterprise Development Fund Recapitalization	300,000
Mississippi Mobile Learning Lab	80,000
Three Rivers Planning and Development District	
Mantachie Industrial Park Water Improvements, Itawamba County	$ 125,000
Baldwyn Wastewater Treatment Facility, Lee and Prentiss Counties	150,000
Regional Initiatives	
Adult Technology Literacy Center, Itawamba Community College	$ 50,000
Three Rivers Revolving Loan Fund Recapitalization	500,000
Golden Triangle Planning and Development District	
Lowndes County Port Warehouse Expansion	$ 215,000
Tibbee Industrial Park Water System Improvements, Clay County	145,000
Regional Initiatives	
Greater Columbus Learning Center, Lowndes County	$ 75,000
Golden Triangle Area Agency on Aging Senior Crafts Shoppe	8,642

East Central Planning and Development District

Regional Agricultural Incubator Demonstration, Kemper and Winston Cos *	$ 150,000
Regional Child Day Care and Skills Development Demonstration Project *	150,000

DISTRESSED COUNTIES

Northeast Mississippi Planning and Development District

Benton County Fire Protection Improvements	$ 115,000
Marshall County Water Association Water System *	250,000
Potts Camp Water Addition, Marshall County	100,000

Three Rivers Planning and Development District

East Chickasaw Water System Improvements. Chickasaw County	$ 150,000
New Houlka Wastewater Facilities, Chickasaw County	100,000

Golden Triangle Planning and Development District

Mashulaville Water System Improvements, Noxubee County	$ 175,000
Ellison Ridge Water System Improvements, Winston County	220,000
Macon Water Line Reconstruction, Noxubee County	100,000
Brooksville Wastewater Treatment Facilities, Noxubee County	250,000

Access Roads

Midway Industrial Access Road, Tishomingo County	$ 150,000
Shuqualak Industrial Access Road, Noxubee County	150,000
Amory Port Access Road, Monroe County *	100,000
Union County Genesis/Rail Distribution Center Access Road	118,000

NEW YORK

AREA DEVELOPMENT	Estimated ARC Funds
Technical Assistance	
Consolidated Technical Assistance, Multi County	$ 295,000
Demonstrations	
Community Advisors Program, Multi County	$ 120,000
Coldwater Acquaculture Demonstration, Schoharie County (RPI)	60,000
Community Infrastructure and Enterprise Development	
Wellsville Air Industrial Park Sewer Line, Allegany County (NY-10405)	$ 150,000
Jamestown Infrastructure Development, Chautauqua County	150,000
Cattaraugus County Economic Development Zone Incubator	150,000
Watkins Glen Water System Improvements (Schuyler ARC), Schuyler County	129,000
Groton Industrial Park Development, Tompkins County	150,000
Oneonta Southside Sewer Line, Otsego County	150,000
Firewood Processing and Packaging Operation, Multi County *	22,500
International Marketing for Southern Tier West *	147,032
Agora Center Business Incubator, Tompkins County*	150,000
Education	
Alternative Education Program, Chautauqua County (RPI) (NY-10436) *	$ 35,400
Jamestown Community College Training Centers, Multi County	150,000
Micrographics Training Program and Clerical Component, Steuben County	58,699
Schoharie Distance Learning, Schoharie County (RPI)	104,000
New York State Initiative 90, Multi County	$ 40,000
Linking Individuals to Fundamental Training (Lift), Allegany County	81,952
LVA-Chenango County Computer Assisted Tutoring	27,934
Health	
Rural Health Partnership Demonstration for STW (RPI) (NY-10469)	$ 85,158
Community Health Center Network Stability Enhancement, Cortland Co.	26,030
Jamestown Area Health Care Cost Containment, Multi County (NY-10284) *	70,560
Delaware-Otsego Counties Rural Health Partnership	30,170

Child Care and Social Development

Olean YMCA Employer-Supported Child Care, Cattaraugus County *	$ 101,956
MLI Day Care Center, Tioga County (NY-10465)	107,911
Chase Memorial Day Care Center, Chenango County	99,650
Cortland Memorial Hospital Employer-Supported Child Day Care, Cortland County	100,361
Adult Social Day Care Program, Multi County (RPI) *	63,614

Housing

New York State Appalachian Housing Fund Recapitalization, Multi County	$ 100,000

NORTH CAROLINA

AREA DEVELOPMENT	Estimated ARC Funds
Water and Sewer	
Caldwell Industrial Sewer, Cajah's Mountain, Caldwell County	$ 175,280
Elk Park Sewer System, Avery County	200,000
Haywood Water and Sewer, Haywood County	600,000
Jefferson Water, Ashe County *	200,000
Morganton Water Plant Expansion, Burke County	118,500
Spruce Pine Water, Mitchell County	200,000
Valdese Water, Burke County	200,000
Lansing Sewer System, Ashe County	211,219
Technical Assistance, Job Training, Other	
Appalachian Youth Conservancy, McDowell County	$ 53,292
CCRC Management and Marketing Assistance *	25,000
Consolidated Technical Assistance Program	350,000
Job Training/Self-Employment Opportunities, Buncombe County	39,785
Professions in Crafts	20,000
Regional Solid Waste Initiative	300,000
TEACH	53,600

OHIO

AREA DEVELOPMENT	Estimated ARC FUNDS
Ohio Consolidated Technical Assistance/Special District Projects *	$400,000
Appalachian Ohio Physician Recruitment Program	48,000
Appalachian Industrial Retraining Program Fund *	250,000

Buckeye Hills-Hocking Valley Regional Development District

Worker Owned Network Cooperative Incubator *	$250,000
BH-HVRDD Procurement Technical Assistance	30,000
BH-HVRDD Eldercare Options for Regional Business & Industry Employees	80,000
McConnelsville Water & Sanitary Sewer Service Extension, Morgan County	300,000
Hocking Technical College Hardwood Lumber Drying Technology *	90,000
Washington Technical College Instructional Equipment Updates for Applied Business Technologies	55,125

Ohio Mid-Eastern Governments Association

Newcomerstown Water Improvements, Tuscarawas County	$200,000
OME-RESA Facility Expansion, Jefferson County *	120,000
Midvale Industrial Park Water & Sewer Improvements, Tuscarawas County	220,000
St. Clairsville Business District Expansion, Belmont County *	100,000
Belmont Technical College Electro-Mechanical Technology Program	40,000
Coshocton County JVS Electronics Equipment	40,000

Ohio Valley Regional Development Commission

Sarah James Industrial Park Infrastructure Improvements, Jackson County	$168,925
Pike County JSVD Economic Development for Job Retention	66,000
Seaman Industrial Park Infrastructure Development, Adams County *	125,000
Clermont Water Tower, Village of Williamsburg	108,000
OVRDC's Small Business Revolving Loan Fund Recapitalization *	135,000

DISTRESSED COUNTIES	
Turkey Run/Nipgen Road Waterline Extensions, Pike County	$ 75,000
Peebles Wastewater Treatment Plant and System Improvements, Adams Co. *	80,000
Manchester Water Well Field Land Acquisition, Adams County*	40,000
Seaman Wastewater Treatment Plant & System Improvements, Adams Co. *	40,000

PENNSYLVANIA

AREA DEVELOPMENT	Estimated ARC Funds
Technical Assistance	
Consolidated Technical Assistance, Multi County	$350,000
Advanced Technological Information System for N.E. Penn. (PA-10263) *	100,000
Regional Grantsperson for Northwest Pennsylvania *	50,000
Pennsylvania Economic Dislocation Adjustment Project *	50,000
Continuing Care Retirement Community Feasibility Study, Warren County	10,000
Enterprise Development	
Northeastern Regional Enterprise Development	$400,000
North Central Regional Enterprise Development	250,000
Northern Tier Regional Enterprise Development	275,000
SEDA-COG Regional Enterprise Development	425,000
Southern Alleghenies Enterprise Development	375,000
Northwest Regional Enterprise Development	375,000
BIDCO of Pittsburgh Enterprise Development, Allegheny County (PA-10188)	50,000
SEDA-COG AgriBusiness Export Expansion (PA-10111) *	50,500
SEDA-COG Export Promotion (PA-10102) *	54,500
SEDA-COG Industrial Modernization Incentive Fund (PA-10109) *	250,000
SEDA-COG Manufactures Marketing Network (PA-10107) *	140,000
SEDA-COG Overseas Market Expansion (PA-10106) *	60,000
Northeastern Labor and Supply Demand Action Program (PA-10264) *	50,000
Industrial-Infrastructure Development	
Altoona Infrastructure Development, Blair County *	$300,000
Bradford Area Enterprise Development Center, McKean County *	125,000
Clinton Industrial Site Development, Armstrong County *	500,000
Columbia County Industrial Park *	250,000
Curwensville Industrial Park, Clearfield County *	282,500
Franklin Center Annex, Beaver County *	250,000
Huntingdon County Business Industrial Park *	400,000
McKean County Wood Resources Opportunity Park Rail Spur *	200,000
McKean County Wood Resources Opportunity Park Sewer Line *	90,000
Clearfield Fireman's Industrial Park Development, Clearfield County (PA-10262) *	200,000
Mifflin County Industrial Buildings Renovations *	250,000

	Estimated ARC Funds
Milton Area Industrial Park Development, Northumberland County *	$ 250,000
Ridgway Multi-Tenant Complex - Phase II, Elk County (PA-10356) *	95,600
State Route 764 Industrial Site Development, Blair County *	
Tioga County Conrail Spur Acquisition *	500,000
Pike Township Water Supply Facilities, Clearfield County (PA-10391) *	250,000
Hallstead Industrial Park Access, Susquehanna County *	110,000
Allegheny Particle Board Industrial Park, McKean County *	250,000
Homewood-Brushton Franchise Mini-Mall, Allegheny County *	100,000
Summit Township Industrial Park, Erie County (PA-10219)*	280,000

Education

Lackawanna Junior College Career Preparation Center, Lackawanna County*	$ 300,000
Juniata Valley School District Aquaculture Curriculum, Huntingdon County	100,000
"Start Here" A Children's Television Series, Multi County *	60,000
Wilson College Partnership High School Dropout Prevention Program, Fulton County *	31,715

Health

Assessment of Allied Health Care Supply and Demand in the Southern Alleghenies Region	$ 50,000
DuBois Regional Medical Center Regional Laser Center, Clearfield County *	70,000

Child Care

Kane Regional Center Day Care (McKeesport), Allegheny County (PA-10279)	$ 50,000
Erie Child Care, Erie County (PA-10306)	50,000

Access Roads

Alcoa Center Business and Research Park Access Road, Westmoreland Co. *	$ 650,000
Clinton Industrial Site Access Road, Armstrong County*	500,000
Crestwood Industrial Park Access Road, Luzerne County *	187,500
Duquesne Business Park Access Road, Allegheny County *	500,000
Edgewood Business Park Access Road, Luzerne County *	300,000
New Scranton Center Avenue Connector, Westmoreland County *	116,000
Southpointe Access Road (Phase III), Washington County*	500,000
Southwestern Indiana County Industrial Park Access Road *	500,000

SOUTH CAROLINA

Area Development	Estimated ARC Funds
Manpower Training	
Greenville Technical College Engineering Technology Instructional Equipment, Greenville County	$ 77,753
Greenville Technical College Industrial Technology Equipment, Greenville County	47,565
Spartanburg Technical College Computer Technology Equipment, Spartanburg County	117,630
Spartanburg Technical College Engineering Technology Equipment, Spartanburg County	70,020
Tri-County Technical College Office Systems Technology Equipment	78,562
Infrastructure and Technical Assistance	
Oconee County Sewer Line Extension and Flow Monitoring Station for Falcon Finishing Company	$ 94,725
Anderson County Water and Sewer Extensions to Santens Industrial Site	250,000
Anderson County Water and Sewer Improvements for Consolidated Stores Warehouse/Distribution Center *	358,500
South Carolina Consolidated Technical Assistance Program	40,000
Greenville County Industrial Site Acquisition/Preparation Project	167,000
Industrial Equipment Acquisition Project, Spartanburg County	50,000
Cherokee County Industrial Water and Sewer Line Extensions	50,000

TENNESSEE

AREA DEVELOPMENT	Estimated ARC Funds
Technical Assistance	
Consolidated Technical Assistance Grant, Multi County	$ 200,000
Industrial Development	
TRDA Industrial Wastewater Treatment, Monroe County *	$ 500,000
TRW Industrial Location (Cookeville), Putnam County (TN-10418)	91,868
Education	
Adult Literacy Program, Multi County	$ 500,000
DISTRESSED COUNTIES	
Mountain City Water System Improvements (PVUD), Johnson County*	$ 500,000
Marion County/Suck Creek Water System (TN-10065)	250,000
Tracy City Water Supply, Grundy County *	1,000,000
Monteagle Water System Improvements, Grundy County (TN-8760)	124,199
Mountain City Wastewater Treatment Plant, Johnson County (TN-10420)	462,400
Pleasant Hill Water Project, Cumberland County (TN-10425)	240,000
Plateau Utility District Water System (Wartburg), Morgan County	500,000
Jellico Wastewater Facilities Improvements, Campbell County (TN-10417)	339,840
Fairview/Robbins Sewer Line Extension, Scott County	500,000
Valley View Sewer Line Extension, Campbell County *	500,000
LaFollette Norris Reservoir Regional Water Supply, Campbell and Claiborne Counties *	1,000,000
Winfield Sewer Line Extension, Scott County *	363,000
Flynn's Creek Rural Waterline, Jackson County	118,000
Sunbright Sewer Line Extension, Morgan County*	493,200
Sweetwater-TASS Water Systems Interconnection, Monroe County *	215,200
Dry Run Water Supply, Johnson County	500,000
Whitwell Kentner Grove Water Storage, Marion County *	170,000

VIRGINIA

AREA DEVELOPMENT	Estimated ARC Funds
State Research and Technical Assistance	
Virginia Consolidated Technical Assistance	$ 20,000
Regional Program Initiative	
Virginia Department of Health Resource Mothers Program	$ 50,000
Clinch Valley College Nursing Program Planning	60,000
Direct Job Creation	
Falls Mill Water Improvements, Tazewell County *	$ 500,000
Rural Retreat Water Improvements, Wythe County *	127,500
Middle Fork Child Care Center, Smyth County	55,200
New River Community College Tool and Die Training Equipment	200,000
Southwest Virginia College Appalachian Quality Advantage Program	57,480
Town of Grundy Business Incubator, Buchanan County *	120,000
Blackwood Industrial Site Sewer, Wise County *	500,000
Strategic Site Development	
Dickenson County Industrial Development, Happy Valley Site *	$ 500,000
Lee County Industrial Park *	500,000
DISTRESSED COUNTIES	
Buchanan County Water Improvements	$ 500,000
Dryden Sewer, Lee County *	500,000
Western Lee County Water *	500,000
Western Lee County Sewer *	500,000

PROJECTS PROPOSED FOR OTHER FUNDING

Local Development District Program	$ 253,000

LENOWISCO Planning District Commission
Cumberland Plateau Planning District Commission
Mt. Rogers Planning District Commission
New River Planning District Commission
Fifth Planning District Commission
Central Shenandoah Planning District Commission

WEST VIRGINIA

AREA DEVELOPMENT	Estimated ARC Funds
Eastern W.V. Regional Airport Marketing Study	$ 25,000
West Virginia Air Center, Harrison County	999,000
Jefferson County Industrial Park Sewer & Water Improvements	505,205
Wheeling Creek Watershed Dam, Ohio County *	500,000
Blennerhassett Historical Park, Wood County	118,300
West Virginia Scholars Academy, Woodlands Mountain Institute	149,000
West Virginia Consolidated Technical Assistance, GOCID	350,000
W.V. Division of Health Rural Health Partnership Task Force	17,640
Back-ups	
City of Weirton Water Improvements, Hancock County	$ 750,000
Ruthdale PSD Corridor "G" Sewer Extension, Kanawha County	500,000
DISTRESSED COUNTIES	
Justice PSD Water System Improvements	$ 258,042
Back-up	
Ivydale Water, Clay County	$ 600,000

HIGHWAY PROGRAM

Q. 1. WHAT IS THE STATUS OF THE APPALACHIAN HIGHWAY PROGRAM?

A. Construction of the full system is estimated at about 3,035 miles.

Currently construction is complete or underway on 2,096 miles, utilizing nearly $3.5 billion of ARC funds.

There remains to be constructed about 939 miles, which would require about $5,700 million Federal funds at present matching rates of 80 percent Federal.

APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM
MILES UNDERWAY AND MILES TO COMPLETE
AS OF SEPTEMBER 30, 1989

		CONSTRUCTION COMPLETED OR UNDERWAY		REMAINING MILES TO COMPLETE	
STATE	CONSTR. REQUIRED MILES	MILES	ARC COSTS (000)	MILES	ARC COST (000)
ALABAMA	232.4	109.3	$ 146,704	123.1	$ 555,321
GEORGIA	132.7	103.8	98,824	28.9	184,881
KENTUCKY	434.8	349.2	516,781	85.6	600,325
MARYLAND	83.2	77.0	134,823	6.2	98,843
MISSISSIPPI	116.8	66.8	99,792	50.0	147,821
NEW YORK	219.5	199.8	281,401	19.7	233,483
NORTH CAROLINA	205.4	155.7	155,450	49.7	312,877
OHIO	201.6	146.0	125,836	55.6	218,486
PENNSYLVANIA	453.5	207.9	527,710	245.6	1,485,309
SOUTH CAROLINA	22.9	16.6	15,324	6.3	11,549
TENNESSEE	330.1	242.0	342,061	88.1	534,522
VIRGINIA	191.3	154.5	136,029	36.8	196,715
WEST VIRGINIA	410.7	267.1	680,772	143.6	1,119,583
ADHS TOTAL	3,034.9	2,095.7	$ 3,261,507	939.2	$ 5,699,715

2. PROVIDE A SUMMARY OF FY 1989 AND FY 1990 HIGHWAY PROJECTS.

HIGHWAY PROGRAM

1989 ACCOMPLISHMENTS

-- Placed under contract 9.1 miles to total of 2,096 miles or 69 percent of authorized miles of 3,025.

-- Of these 1,999 miles have been completed, an increase of 58 miles.

-- Right-of-way on a total of 2,240 miles.

-- Engineering design on an additional 17 miles for a total of 2,630 miles.

-- At end of FY 1989 States had prefinanced $270 million, a decrease of $4 million.

-- Access roads -- 11 miles placed under contract. Total of 862 miles.

-- 1989 obligations -- $71,562 thousands.

ANTICIPATED 1990

-- Approximately 24 miles added for construction plus 20 miles of right-of-way and 20 miles under design.

-- State prefinanced to be about $260 million level.

-- By close of 1990, 2,120 miles construction to contract, of which 2,020 miles should be completed.

BUDGETED 1991 (President's Budget)

-- 6 miles additional under contract for construction to 2,126 miles.

-- Right-of-way to remain at 2,260 miles.

-- Design to remain at 2,650 miles.

-- Estimated 2,050 miles completed and open to traffic.

HIGHWAY

3. Q. PROVIDE A TABLE SHOWING A STATE-BY-STATE STATUS OF THE HIGHWAY PROGRAM INCLUDING AMOUNTS AND COSTS ACCOMPLISHED AND AMOUNTS AND COST REMAINING THROUGH THE COMPLETION.

APPALACHIAN HIGHWAY PROGRAM
CUMULATIVE MILEAGE SUMMARY
as of
September 30, 1989

State	Construction Required	Construction Completed or Underway	Remaining Miles to Complete
Alabama	232.4	109.3	123.1
Georgia	132.7	103.8	28.9
Kentucky	434.8	349.2	85.6
Maryland	83.2	77.0	6.2
Mississippi	116.8	66.8	50.0
New York	219.5	199.8	19.7
North Carolina	205.4	155.7	49.7
Ohio	201.6	146.0	55.6
Pennsylvania	453.5	207.9	245.6
South Carolina	22.9	16.6	6.3
Tennessee	330.1	242.0	88.1
Virginia	191.4	154.5	36.9
West Virginia	410.7	267.1	143.6
ADHS TOTAL	3,034.9	2,095.7	939.2

4. Q. WHAT IS ARC's CAPABILITY ON CORRIDORS X AND V AND WHAT IS THE STATUS OF EACH?

CAPABILITY AND STATUS -- CORRIDORS "V" AND "X"

We are continuing to monitor progress on Corridors "V" and "X". One hundred and fifty miles of Corridor "V" is under contract or complete, with 93 miles remaining. On Corridor "X", which started later, 26 of the 106 miles are under construction, leaving 80 miles to be constructed.

Alabama

With 1990 funds, Alabama plans to prefinance right-of-way acquisition from Mt. Carmel to Tennessee state line. Alabama also plans to convert some of the prefinanced stage construction on a section of Corridor "X" from SR-19 to US-43 south of Hamilton, and to prefinance 6 miles of right-of-way construction from US-43 south of Hamilton to CR-45.

Mississippi

Stage construction has been funded or prefinanced on the entire 9.5-mile section of Corridor "X" from Corridor "V" easterly to the Alabama state line. Additional stage construction on Corridor "V" is scheduled on the 6 mile section from 7 miles east of the Lafayette County to SR-15 west of Tupelo. Designed and right-of-way acquisition is scheduled from Oxford to US-78. Right-of-way acquisition are also scheduled on Corridor "V" from US-78 east of Fulton to the SR-25 connector, a distance of 3.9 miles. Right-of-way acquisition is scheduled for the 10.8-mile section from the SR-25 connector to the Alabama state line. Paving is scheduled on all of the 9.5 miles of Corridor "X".

Highway Program

Mr. Bevill. What is the impact of the reduced funding request for development highways?

Ms. Phillips. Reduced funding for the development highways would require more state contributions to keep the highway construction at its current level.

1991 Budget

Mr. Myers. Although the fiscal 1991 budget request is only one-third of the amount appropriated for ARC in fiscal 1990, is the amount requested sufficient to continue both highway and non-highway programs at an adequate level? If not, please explain.

Ms. Phillips. Yes, I believe the fiscal 1991 budget request is sufficient to maintain the momentum of economic progress in the Region. Some highway and non-highway projects may require more state and local contributions to fulfill their funding levels.

Matching Funds

Mr. Myers. What is the current level of non-Federal participation in ARC non-highway programs? How does that compare with the historic average?

Ms. Phillips. The level of non-Federal financial participation in ARC projects rose dramatically in fiscal year 1989 when compared to cumulative project totals through fiscal year 1988. Through FY 1988, non-Federal funds represented 42% of the eligible costs of ARC projects. In FY 1989, the non-Federal funds amounted to 54% of the eligible project costs.

Rural Health

Mr. Myers. Has the Health Manpower Recruitment and Retention element of the Appalachian Rural Health Program made any measurable progress during the last year in the region?

Ms. Phillips. In February, 1989 the Commission adopted its Rural Health Program which focuses on infant mortality reduction, health manpower recruitment and retention, and access to affordable quality health care. The recruitment and retention element of the program is designed to increase the availability of needed health professionals in rural Appalachian communities designated as Health Manpower Shortage Areas by the Public Health Service.

Given the February, 1989 approval date of this program and the Commission's typical funding cycle, States have only recently submitted proposals requesting assistance under this program. It is expected most health manpower projects will be operational by June or July, 1990. Initial preapplications in this program area are requesting more than $300,000. Included among proposals are $60,000 to help Virginia plan a bachelor's degree program in nursing at Clinch Valley College and $50,000 to assist Pennsylvania assess health manpower supply and demand issues in the Southern Allegheniess Region.

Clean Water

Mr. Myers. As you know, small communities throughout the nation are having difficulty complying with the requirements of the Clean Water Act. Please describe how the ARC responds to this problem within its area.

Ms. Phillips. The Commission recognizes that it can't help all of the communities that need help with their water, sewer and solid waste problems, so ARC grant assistance is limited to projects that either; serve, on a financial need basis, new or existing business enterprise that will create or retain job opportunities in the Region, or provide basic water or sewer services within the Region's 90 most distressed and underdeveloped counties, where many families are still without indoor plumbing.

In addition to these grants for "hardware," the Commission also provides technical assistance support for service consolidations and other institutional arrangements directed to more effective delivery of programs and services on a multi-jurisdictional basis. This is particularly crucial in areas with a difficult mountain terrain, where small independent systems are commonly faced with management and financial problems, and lack the service base to make improvements. Examples of projects funded last year include a feasibility study for a six county regional water system in Eastern Kentucky. The proposed system would system would serve 28,000 people currently relying on unsafe and undependable water sources, such as mine openings. Another Kentucky project supports a circuit rider to help rural water system operators with system operation, maintenance and management problems; a West Virginia program, in conjunction with the West Virginia extension service, to combine appropriate small flow technology for wastewater treatment with a community self help program that will result in reduced construction, operation and maintenance costs for small rural communities in Region 1 that have been unsuccessful in meeting Clean Water Act requirements because of costs.

Highway Program

Mr. Myers. Please provide a table comparing, on a state-by-state basis, the source and actual amount of all funding (including Federal Highway Trust Fund) for ARC highway projects in fiscal year 1990 to the projected levels in fiscal year 1991.

Ms. Phillips. The information requested follows.

APPALACHIAN HIGHWAY PROGRAM
PROJECTED FUNDING SOURCES FOR PROJECTS
(Thousands of Dollars)

STATE	***FISCAL YEAR 1990*** ARC FUND ALLOC.	FEDERAL-AID HIGHWAY DEMO. FUNDS	MINIMUM STATE MATCH	TOTAL FUNDS	**PRESIDENTS BUDGET FISCAL YEAR 1991** ARC FUND ALLOC.	FEDERAL-AID HIGHWAY DEMO. FUNDS	MINIMUM STATE MATCH	TOTAL FUNDS	**GOVERNORS BUDGET FISCAL YEAR 1991** ARC FUND ALLOC.	FEDERAL-AID HIGHWAY DEMO. FUNDS	MINIMUM STATE MATCH	TOTAL FUNDS
ALABAMA	16,881	8,300	6,295	31,476	2,421	0	605	3,026	15,155	0	3,789	18,944
GEORGIA	3,031	0	758	3,789	1,479	0	370	1,849	5,769	0	1,442	7,211
KENTUCKY	7,692	2,400	2,523	12,615	2,577	2,400	1,244	6,221	16,711	2,400	4,778	23,889
MARYLAND	2,782	90	718	3,590	1,493	90	396	1,978	5,908	90	1,499	7,497
MISSISSIPPI	12,528	0	3,132	15,660	1,396	0	349	1,745	4,934	0	1,234	6,168
NEW YORK	3,554	21,280	1,209	26,043	1,602	1,280	721	3,603	6,996	1,280	2,069	10,345
N. CAROLINA	4,325	0	1,081	5,406	1,784	0	446	2,230	8,805	0	2,201	11,006
OHIO	2,912	0	728	3,640	1,527	0	382	1,909	6,250	0	1,563	7,813
PENNSYLVANIA	10,036	14,400	6,109	30,545	3,254	14,400	4,414	22,068	23,454	14,400	9,464	47,318
S. CAROLINA	895	0	224	1,119	1,034	0	259	1,293	1,342	0	336	1,678
TENNESSEE	6,396	3,200	2,399	11,995	2,351	3,200	1,388	6,939	14,460	3,200	4,415	22,075
VIRGINIA	2,919	0	730	3,649	1,528	0	382	1,910	6,262	0	1,566	7,828
W. VIRGINIA	29,739	42,000	7,435	79,174	3,254	0	814	4,068	23,454	0	5,864	29,318
ADHS TOTAL	103,690	91,670	33,340	228,700	25,700	21,370	11,767	58,837	139,500	21,370	40,217	201,087
ACCESS	0			0	3,000		750	3,750	3,000	0	750	3,750
ADMINISTRATION	1,300	0	0	1,300	1,300	0	0	1,300	1,500	0	0	1,500
TOTAL	104,990	91,670	33,340	230,000	30,000	21,370	12,517	63,887	144,000	21,370	40,967	206,337

NOTE: THE AMOUNTS ABOVE DO NOT INCLUDE FEDERAL-AID HIGHWAY OR OTHER FUNDS THAT MAY BE ELIGIBLE TO BE USED AT EACH STATES DISCRETION

PRIORIRIES FOR PENNSYLVANIA

Mr. Bevill. What are your top priorities for the State of Pennsylvania, and how do the ARC Programs fit into this framework?

Governor Casey. The centerpiece of my administration's economic development effort is the Pennsylvania economic development partnership, which is driven by a public-private board comprised of representatives from the highest levels of business, education, labor and government.

The partnership's strategy is simple: to improve the competitive position and advantages of Pennsylvania's companies; to realize the full potential of Pennsylvania's workforce and assist workers and communities to adjust to industrial change; and to improve the economic infrastructure necessary to support long-term growth.

Specific strategic initiatives which we will be pursuing with ARC support this year include: (a) the continued development of thee Mon Valley Region, which is still recovering from the dislocation of the steel industry; (b) employee supported child care programs patterned after the highly successful model I established for state employees last year; (c) education; one of the major goals of this administration is to give our young people every opportunity to achieve their fullest potential in life. ARC support will help us prepare our children to become capable members of tomorrow's workforce; (d) another key initiative is the development of high technology industries, such as Powered Metals Companies. Advance Technology firms are playing an increasingly important role in a diversified information-based global economy. Our assistance will support Pennsylvania's continued emergence as a high-tech leader and complement its resurgence in manufacturing; (e) the further development of specific industries such as hardwoods, printing and publishing, and food processing; (f) and finally, environmental technology. Clean air and water, adequate sewage capacity, and hazardous waste cleanup are essential not only to the health and safety of our families but to the growth and vitality of our businesses.

COAL

Mr. Bevill. Pennsylvania is a major coal producing state. What have been the recent trends in coal employment and production in your state?

Governor Casey. Coal mining is an activity long associated with the Commonwealth of Pennsylvania. Earliest deposits were discovered and worked in the mid-1700's. Cumulative production form the state between 1890 and 1985 totaled 14.8 billion short tons of coal - the most from andy state in the union. Peak production year was 1918 when 277,4 million tons were mined. Some 36 percent, or 98.8 million tons, came from anthracite deposits.

Since this peak the production of coal has fluctuated widely with a generally downward trend. This has been particularly true for anthracite where production has hovered between 3-6 million tons over the last 9 years.

In 1960 Pennsylvania was ranked number 2 among the states (behind West Virginia) in overall coal production (65.4 mst of bituminous and 18.8 mst of anthracite for a total of 84.2 mst). By 1970 this ranking had dropped to number 3, behind West Virginia and Kentucky, with 80.5 mst of bituminous and 9.7 mst of anthracite produced, for a total of 90.2 mst. With the development of major production in the west, Pennsylvania's rank as a producer slipped to fourth place by 1980 with overall production of 93.1 mst. Production hits its lowest level in the recession year of 1983 when only 69.8 mst were produced. Rebounding somewhat in 1974 to 77.4 mst, production had been between 71-74 million tons over the last five years.

In 1988 coal was produced in 32 of the 66 counties in Pennsylvania. All of these counties are in the officially designated Appalachian Region of the state. Major production (over one million tons per year) in the bituminous belt is confined, however, to string of 13 counties in west central and southwest Pennsylvania surrounding Pittsburgh. Of these counties Greene was the highest producer with almost 15 million tons in 1988. In the anthracite belt only Schuykill was major producer with 2.1 million tons. Production in 1975 was evenly divided between surface and underground operations. Surface mining operations increase in the early 80's but by 1988 some 56 percent of all production was coming from underground mines. The late 1970's also bought a steep decline in the number of mines operating, declining from 241 underground mines in 1975 to 124 in 1980. This number has since inched forward until 163 such mines were reported operating at the end 1988. The number of surface mines also declined between 1975 and 1980 from 944 to 549, a level which has been maintained through 1989. Ninety percent of anthracite production comes from surface mines. Coal from all production was valued at $2.1 billion.

As productivity has improved the number of people needed to produce a ton of coal has diminished. In 1947, for instance, some 186,000 people were employed in Pennsylvania in coal extraction. By 1970 employment had shrunk to 19,500 employed in underground mines and another 9,000 employed in surface mining. Enjoying a brief period of growth in the late 1970's, employment swelled to 39,600 by 1978 and then started declining to a 1989 level of 16,500. Of this total about 60 percent are employed ln underground operations. Productivity in underground mines went from .99 tons per miner hour in 1980 to 1.97 tons per miner hour in 1988, a 99 percent improvement in 9 years. This improvement paralleled al similar rate of improvement for all U.S. underground mines. Surface mining productivity advanced from 2.11 tons per miner hour to 2.32 tons per miner hour, a 10 percent gain, during the same time period.

SOLID WASTE

Mr. Bevill. The disposal and transportation of hazardous and solid waste are a growing problem for communities. What has been your experience in this area?

Governor Casey. I can offer first hand evidence that the disposal and transportation of waste material is a major problem. I have just come from the closing plenary session of the National Governors Association Winter Meeting where I presented the report by the Task Force on Solid Waste Management, which was my pleasure to chair.

This issue will be a major item on the agenda for local government, governors and, I dare say, for the Congress for some years to come. Unfortunately, there are no magical solutions.

ARC PROGRAM SUCCESS

Mr. Bevill. What successes in your State can you point to that have resulted from ARC programs?

Governor Casey. Through ARC we have been able to create several business incubators which have provided support and technical assistance to newly created enterprises. In the past, nearly nine out of every ten businesses failed within the first five years. By using the incubator system, we have been successful in lowering that average.

Small business is big business in Pennsylvania. Small business growth helped the Commonwealth become one of a few states to show an increase in business start-ups over the last few years. Small businesses are the backbone of the state's economy. We believe that the support provided by the incubators to these infant companies accounts for our high rate of success.

Another area of success of which we can attribute to ARC participation is the Enterprise Development Program operated by our Local Development Districts (LDDs).

Under the program, the LDDs attempt to revitalize economically distressed communities through an integrated system of business and community support services. Each district is active in the core program areas of development finance, federal procurement assistance, and export outreach. Each LDD maintains at least one full time staff person for each of the program areas.

In addition to the major program areas, the LDDs activities include job training, advanced technology, industrial site development, labor-management assistance, transportation, enterprise zones and housing.

We are proud of the work being done by our Local Development Districts and recognize the key role ARC plays in their mission.

Statement of Jacqueline L. Phillips
Before the Subcommittee on Energy and Water Development of the House Appropriations Committee
February 27, 1990

Thank you, Mr. Chairman.

I'm honored to appear before you and other members of this subcommittee.

During the years I served as the Appalachian Regional Commission's Alternate Federal Co-Chairman, I observed firsthand the role you have played in supporting ARC's mission--the economic development of the Appalachian Region. The Appalachian people deeply appreciate that support.

As you know, the Bush Administration has requested 50 million dollars for the ARC program in 1991. That funding level departs from administration budget requests of the past eight years and recognizes one of the areas where Congress and the Executive branch need to reach agreement on future funding levels.

At least for the 1991 fiscal year, the Administration will watch what ARC does and how its programs impact on an important area of America--Appalachia's non-farm rural economy.

Over the past 25 years, ARC has accomplished many of the specific objectives it has set for itself:

- Two-thirds of the 3,000-mile Appalachian Development Highway System is complete or under way.
- More than 700 vocational schools have been built and equipped throughout the Region.
- A network of health care centers has been completed, putting primary health care within reach of every Appalachian.
- Thousands of jobs have been created through ARC investments in industrial sites enabling existing companies to expand and new plants to be built.

But in some areas, Appalachia's problems are stubborn and deep-rooted. For example, per capita income and education levels lag slightly behind the rest of the nation. The

Administration's budget will enable ARC to continue to address those problems, especially in the most distressed counties.

The budget request is divided into two categories, highway and non-highway, with amounts calculated to strike an effective balance between the two.

Funding of 30 million dollars is requested to provide for continued progress on the Appalachian Development Highway System; and the remaining 20 million dollars will be used as follows: 12.5 million dollars will fund area development projects in community and human resource development; 4.2 million dollars will finance the federal contribution toward the administrative expenses of the local development districts and support the Commission's technical assistance program; and 3.9 million dollars will provide for administrative expenses of the Federal and Commission staffs.

I'd like to take a few minutes to give you highlights of the Administration's budget proposal as it relates to special areas of need.

Transportation. Since 1965, Congress and the Appalachian states have placed top priority on building a modern highway system to break down the Region's isolation, link commerce and industry to markets, and make health care, education and other community services accessible to the Region's people.

The funds requested for FY 1991 will be used to help the Appalachian states contract for construction, purchase right-of-way ~~and~~ engineering.

By the end of FY 1989, 2,096 of the 3,025 miles authorized by Congress had been contracted for construction, with 1,999 miles completed and virtually all open to traffic.

Education. The dropout rate in some Appalachian counties is more than one and a half times higher than the national rate. Appalachia still lags slightly behind the nation in adult literacy and the number of young people going to college.

The Administration's budget provides 6.1 million dollars for ARC human development projects, including the following areas in education: skill-training for secondary and post-secondary students; retraining the labor force to meet changing job requirements; dropout prevention and re-entry programs; customized job training for industry; and upgrading the education climate of the Region as a whole.

Here are some of the ways ARC addressed these needs in 1989:

- Almost 1.2 million dollars in ARC funds were granted for 14 new dropout prevention programs and the continuation of 28 others in six Appalachian

States. Almost 1.5 million dollars was invested in workplace literacy and/or adult literacy.

- A grant was made to the Corning New York Community College for instruction in high technology systems and manufacturing concepts for 170 workers from the Dresser-Rand plant located in Painted Post, New York.

Infant Mortality. While the Region's infant mortality rate overall has dropped to almost equal the nation's, there are still Appalachian counties where the rate is more than twice as high. These rates can be lowered through outreach, prenatal care and better nutrition. These projects are funded under the 6.1 million dollars budgeted for human resource development.

For example, in response to increasing shortages of prenatal care, Alabama received 800,000 dollars in ARC funds to expand existing services by establishing a prenatal clinic in each of its 35 Appalachian counties. The project is expected to serve 5,800 indigent women and 11,500 infants.

Distressed Counties. About 90 Appalachian counties are among the worst-off in the nation in poverty, per capita income and unemployment. ARC funds make a critical difference when, for example, an extremely poor community needs an adequate water or sewer system, so that its children can have clean drinking water. In 1989, ARC funded 70 projects in distressed counties. For example:

- An innovative program in West Virginia combines appropriate wastewater treatment technology with a community self-help program to lower construction, operation and maintenance costs for eleven small rural communities that have been unsuccessful in raising enough money to meet Clean Water Act requirements.
- An extension of sewer service to Poor Valley Ridge and the community of Sulphur Springs in Virginia will serve 121 households (69 percent low income) that have failing septic systems, outdoor privies and direct discharge of raw sewage into area streams.

Unemployment. In West Virginia and the Appalachian portions of eight other states, unemployment is still higher than the national rate. Some counties have unemployment rates one and a half times higher--or more; and, since 1980, West Virginia and seven other states have experienced net migration losses as people leave the Region to seek jobs elsewhere.

ARC continues to address unemployment by funding projects that will promote small business development, address infrastructure and environment problems and help local governments effectively deliver programs and services. Under the heading of community development, the Administration's budget contains 6.1 million dollars for such projects. Examples of projects funded under this category in 1989 are:

- Major improvements to the Manchester Water System, Clay County, Kentucky, will serve the new Federal Correctional Facility that will be located in the City of Manchester. The facility will provide 350 new jobs to area residents.
- A grant to the Town of Saltillo, in Lee County, Mississippi, will improve an existing sewer system and expand its capacity so that residential and commercial growth--both of which have been put on hold--can continue. For example, a local manufacturer of upholstered furniture now employing 65 people will be able to add 13 new jobs, increasing local payroll by 3,400 dollars per week.

I am happy to report that the Commission continues to explore new ways to fulfill its mission in Appalachia.

Mr. Chairman, it was our pleasure to have you as our guest of honor and keynote speaker at the conference on aquaculture sponsored by ARC in Alabama this past November.

That conference was also addressed by 40 of the aquaculture industry's leading experts from throughout the U.S., and we had more than 300 participants. Together, I think we forged a solid foundation for the work needed to help this growing industry reach its great potential in Appalachia.

In the months ahead, we will hold at least two more important meetings to examine the potential of other industries. All of our states will participate in a workshop on tourism in West Virginia this Spring, and we have scheduled a regionwide furniture industry workshop in Mississippi this fall. Alabama and Mississippi are co-hosting this conference.

This will be an especially exciting year for ARC: it is the Commission's 25th birthday, and we are planning two special projects to mark this anniversary.

One, we are now working with our states on a project to develop the leadership capability of the Region's youth through internships in community service. One goal is to put in place programs that will be self-perpetuating.

A long-range goal is to develop this great resource--our youth--and persuade them that there are great opportunities for service and leadership right in their own backyards--that they don't need to leave home to find challenges that will engage their energies and commitment.

As the second part of our anniversary celebration, we will also be taking a hard look at the status and needs of the Region's children, through a comprehensive research study. We plan to get input from the youth themselves on this activity.

As I stated earlier, one of the top agenda items is highways. We expect the Administration to address completion of the Appalachian Development Highway System in the National Transportation policy. I will continue to discuss this with appropriate officials in the Department of Transportation. And, as you know, there are already other legislative proposals on this issue.

We will be taking every appropriate step to achieve our goal of completing remaining critical portions of the Appalachian Corridor System.

Mr. Chairman, that concludes my testimony. In closing may I say that funds appropriated for ARC will be administered by me with all the prudence and concern that you expect and that the people of Appalachia deserve.

Thank you again for providing this opportunity to present the Administration's ARC budget request. I welcome any questions you may have.

JACQUELINE L. PHILLIPS
Acting Federal Co-Chairman
Appalachian Regional Commission

President Bush nominated Ms. Jacqueline L. Phillips as Federal Co-Chairman of the Appalachian Regional Commission in October, 1989, and she has served in that capacity while awaiting Senate confirmation.

One of the senior level appointees in the Bush Administration, she serves as a leader in the economic and social development of the Appalachian region.

Prior to her appointment, Ms. Phillips served seven years as the Alternate Federal Co-Chairman for the ARC, adding to her impressive list of achievements as a community leader and activist in the Republican Party.

As the top-ranking federal official in a unique federal-state-local economic development agency, Ms. Phillips plays a key role in shaping policies that affect more than 20 million residents of the 13 Appalachian states.

During her tenure at the ARC, Ms. Phillips has focused attention on human resource programs and, in particular, on efforts to combat illiteracy in Appalachia.

Jackie Phillips brings to her job nearly 20 years of experience in political consulting, coalition building and community and education-related development.

She has been a tireless campaigner for candidates, from the local level up to presidential campaigns. She has lectured throughout the nation on successful campaign management and techniques.

She directed the Bush for President campaign in Maryland in 1980, then served as deputy director of the Reagan-Bush campaign in her native state. She served as a delegate or alternate to the 1980, 1984 and 1988 Republican National Conventions.

The mother of four grown children, Jackie Phillips resides in Silver Spring, Maryland.

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PREPARED TESTIMONY OF
HONORABLE ROBERT P. CASEY
GOVERNOR OF PENNSYLVANIA
TO THE

HOUSE APPROPRIATIONS SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
TUESDAY, FEBRUARY 27, 1990 - 10:00 A.M.
RAYBURN HOUSE OFFICE BUILDING, ROOM 2362

Thank you very much Mr. Chairman and members of the Committee. I appreciate the opportunity to appear before you on behalf of the thirteen Appalachian Governors in support of an FY 1991 appropriation of nearly $185 million for the programs of the Appalachian Regional Commission.

I am particularly pleased because for the first time in nine years we have a Federal Co-Chairman who can join with the Governors in requesting an appropriation from the Congress. We recognize your steadfast support for the program, Mr. Chairman, as well as the support provided by Chairman Whitten and this Committee during these difficult years. It is clear that your efforts have not been lost on the President or on his advisors as evidenced by the inclusion of the Appalachian program in the President's budget. The Governors deeply appreciate this support, Mr. Chairman, as well the successful efforts of our new Federal Co-Chairman.

Having expressed our pleasure at being included in the President's budget request, however, I hope I will be forgiven if I express great disappointment at the amount of the request. $50 million is completely inadequate to address the needs that remain in the Region. It is for this reason that the Governors have submitted a supplement to the President's request. Our supplement asks for approximately $185 million for the ARC in FY 1991.

In past years we Governors have submitted what I would call a two-tiered budget. One tier has detailed projected expenditures at a spending level of up to $320 million, a level based on our assessment of the needs in the Region. The other tier has detailed project expenditures at a level consistent with the House authorization action in recent years.

While the need for the higher level of funding still remains and such funding could be effectively utilized, we recognize the political and fiscal constraints under which we all operate. Therefore, this budget submission, while acknowledging the need for higher funding, focuses on program changes which would result if the President's request for $50 million was increased to $184,784,000, an amount consistent with the $185 million which would be authorized under H.R. 2015. As you know, H.R. 2015 has been reported to the floor by the House Committee on Public Works and Transportation and will be considered by the full House in the very near future.

The Commission and its programs are vitally important to the Commonwealth of Pennsylvania, and we are a vitally important part of the Region. We have the largest Appalachian population - 5.8 million accounting for more than one-quarter of the Region's total, the largest land area of any state in the Region, and the largest number of highway corridor miles eligible for construction - 453 miles or nearly 15% of the total.

Ours is a region of great diversity, as you know, Mr. Chairman. It stretches from New York and Pennsylvania through West Virginia and Kentucky to Alabama and Mississippi. But our states share one common and dominant characteristic. Events which hurt the national economy seem to have a greater adverse affect on our Region than on the nation as a whole.

Traditionally, Appalachia has relied more heavily than the rest of the country on manufacturing and mining industries. In recent years these sectors have struggled nationally as a result of global competition and the impact of new technologies. Appalachia, therefore, has experienced more painful adjustments to job losses resulting from industrial restructuring.

In 1980 approximately 38% of Appalachian jobs were in the production of manufactured goods. By 1986 manufacturing employment in the Region had fallen to 31%. Losses in the Region were recorded in almost all specific manufacturing sectors - in primary metals, leather, stone and glass, tobacco, textiles, apparel, fabricated metals, electrical and non-electrical machinery, transportation equipment, and instruments. Overall, manufacturing employment in the first six years of this decade was down by 15% in Appalachia. Declines in manufacturing have been steeper in Appalachia than in the nation as a whole, and increases in service sector employment, while substantial, have lagged behind the U.S. rate of growth.

With the recent growth in the economy nationally, Appalachia's unemployment rate, while still above the national average, has decreased. However, as late as November 1989, 74% of the counties in the Region still suffered from unemployment rates higher than the national average. In 45 counties unemployment rates were more than twice the national annual average. Per capita income in the Region, which had increased significantly compared to the national average from 1965 to 1980, declined significantly between 1980 and 1986.

In 1988 the Region was home to 20.8 million people, 45% of whom lived in non-metropolitan areas. From 1980 to 1988 the U.S. population grew by 8.5%, but the Appalachian population grew by only 2.6%.

42% of the non-metropolitan counties in Appalachia are considered economically weak, and 90 of those are severely distressed. In the rest of the United States only 19% of the rural counties are economically weak. Appalachia's distressed counties have higher drop-out rates, higher illiteracy rates, higher infant mortality rates, and a greater shortage of health professionals.

The beauty of the Appalachian Regional Commission is that it is flexible enough to allow each Governor to focus resources in a way that most effectively addresses these problems in his or her state. In Pennsylvania ARC resources are helping us to build an economic development partnership concept. At the local level ARC funds are being used for business development incubators for adaptive reuse of abandoned steel plants in the Mon Valley, and for selected infrastructure investments serving industrial parks and other locally-initiated activities.

At the Local Development District level Pennsylvania's ARC allocation supports a comprehensive program of business services, including financing, export, and procurement assistance, as well as specialized services to promote regional growth opportunities, such as the powdered metals industry. At the state level ARC resources are being used for initiatives in the hardwoods industry and in employer-supported child care programs; to build a coordinated export partnership system with fast response, a common data base, and the involvement of all key elements, including local export programs, our Department of Commerce Foreign Trade Representatives, and our State Export Office; and for consulting assistance to the Governor's Economic Development Response team, which provides critical support for dealing with major dislocations, strategic regional projects, and hazardous waste and recycling issues.

Because the job is not yet completed in Appalachia, the Governors are submitting a budget request calling for an appropriation of $184,784,000. This includes $144 million for the Highway Program, $33.3 million for Area Development covering Community Development and Human Development Programs, and $4.2 million for support of our Local Development Districts and Commission Technical Assistance Program. This totals $181.5 million. In addition we concur with the President's budget request for $3.284 million for the Federal 50% contribution to Commission administrative expenses and for the expenses of the Federal Co-Chairman's staff.

The Governor's budget request contains tables comparing our request both with the President's budget request and our FY 1990 appropriation. While our request is nearly $135 million more than the President's request, it would provide an increase of only $37 million over the FY 1990 appropriation. I would point out, as well, that while our request in the Non-Highway area is designed to be consistent with H.R. 2015, we have demonstrated in recent years that we can spend more money more effectively if more is available.

This budget request would let us move forward on several fronts to assist the Region's people into the 1990s. Specifically it would include:

1. $144 million for the ARC Highway Program. Nearly all of it ($139.5 million) would be for further progress on the corridors. It would enable us to complete 30 miles of construction and make progress on an additional 70 miles of the system.
2. $26.6 million for the Community Development Program, including infrastructure improvements, assistance for business development and housing, and $8 million specifically targeted for basic services to about 4,000 families in our most distressed counties.
3. $6.1 million for special assistance in our Human Development Program, primarily in the areas of rural education and job training, infant mortality reduction, and youth leadership programs.
4. $4.2 million for support of Local Development Districts and regional technical assistance.
5. $2.3 million for the Federal 50% share of Commission expenses, which will be matched by an equal contribution from the Appalachian states.
6. $1 million for expenses of the Office of the Federal Co-Chairman and Inspector General.
7. $600,000 for costs incurred by Federal agencies in administering projects other than highways.

The budget document contains details of these programs and a more detailed description of the Region's economic condition.

In carrying out these programs, the Governors of the thirteen Appalachian states reaffirm their commitment to the ARC partnership and process. The ARC was conceived nearly 25 years ago as a unique partnership between local, state, and federal governments to insure that Federal assistance would be guided to where it was most needed and would have the greatest impact. It was designed to return authority and responsibility to state and local governments and to address local needs within the context of overall national goals and individual state priorities.

From its inception its unique partnership has been characterized by mutual respect and bi-partisanship among the members and a recognition that each member has a vital role to play in insuring the integrity of the process. Thus, the Commission has had the flexibility to respond quickly and effectively to a wide variety of economic development issues. While much remains to be done, by a reasonable and objective measure the ARC process has been a key factor in the enhanced economic growth and improved quality of life in Pennsylvania and throughout the Region.

Thank you Mr. Chairman. I will be pleased to respond to any questions you may have concerning our request.

Program for The Appalachian Regional Commission Fiscal Year 1991

NEW YORK
PENNSYLVANIA
OHIO
MARYLAND
WEST VIRGINIA
KENTUCKY
VIRGINIA
N. C.
TENN.
S.C.
MISS.
ALABAMA
GEORGIA

President's Budget

As submitted to the Appropriation Committees of the
U.S. House of Representatives and the U.S. Senate, February 1990

APPALACHIAN REGIONAL COMMISSION

Budget Estimates, Fiscal Year 1991

As Submitted by
the
Federal Co-Chairman

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February 1990

APPALACHIAN REGIONAL COMMISSION

BUDGET REQUESTS AND APPROPRIATIONS

Appropriation by Activity	(thousands of dollars) 1990 Approp.	1991 Request	Increase or Decrease
I. Appalachian Regional Dev. Program:			
A. Area Development	$ 35,515	$ 12,516	$-22,999
B. LDD Support and Technical Assistance	4,185	4,200	+15
Subtotal, Non-Highway	$ 39,700	$ 16,716	$-22,984
C. Highways	104,990	30,000	-74,990
Total Appropriation	$144,690	$ 46,716	$-97,974
II. Salaries and Expenses:			
A. Federal Co-Chairman and Inspector General	$ 1,002	$ 1,002	$ ---
B. Federal Share of Commission Expense	2,208	2,282	+74
Total Appropriation	3,210	3,284	+74
GRAND TOTAL	$147,900	$ 50,000	$-97,900

GENERAL STATEMENT AND SUMMARY

Administration's Budget Request

The Administration's budget request for the Appalachian Regional Development program for FY 1991 is for $50 million. This includes $30 million for the Appalachian development highway program, $16.716 million for the non-highway programs of the Commission, and $3,284 thousand for the Salaries and Expenses program.

Budget Summary by Program

Highway Program. The budget request for highways is $30 million. This includes $25.7 million for Corridors, $3 million for access roads and $1.3 million for administering the program. It is expected that by the close of 1991, a total of 2,126 miles of the 3,025 miles authorized by the Congress will have been placed under construction, of which 2,050 will be complete.

Non-Highway Programs. The budget request for non-highway programs is for $16.716 million. The budget request anticipates a balanced use of the Commission's non-highway programs with equal emphasis on human and community development projects. Of the amount requested, $6.1 million would be used for human development projects, and $6.1 million would be used for community development projects. An additional $4.2 million would be used to support local development districts and to fund the regionwide Commission programs of technical assistance. Federal agencies that assist in administering these programs would require $316,000.

Salaries and Expenses. The request for salaries and expenses, which provides for the 50-percent Federal contribution for Commission staff and the full cost of the Federal Co-Chairman's staff is for $3,284,000. This includes $1,002,000 for the Federal Co-Chairman's staff, including the Office of the Inspector General, and $2,282,000 for the Federal contribution to the Commission's administrative expenses. The Appalachian Regional Development Act requires that the member States and the Federal government both contribute 50 percent of the staff costs.

The budget is based upon a Commission staff of 55 positions in 1991. The Federal contribution will be matched by an equal amount from the 13 member States, and with the use of prior year balances, will provide a Commission administrative budget in 1991 of $4,886 thousand.

1991 BUDGET REQUEST BY SUBPROGRAM

(thousands of dollars)

	1990 Appro-priation*	1991 Request
I. Appalachian Regional Development Programs		
A. Highway Program:		
1. Development Highways	$100,690	$25,700
2. Access Road	3,000	3,000
3. Administration and Planning	1,300	1,300
Subtotal, Highways	$104,990	$30,000
B. Non-Highway Programs:		
1. Area Development:		
(a) Community Development	$ 28,815	$ 6,100
(b) Human Development	6,100	6,100
3. LDD Support	$ 3,200	3,200
4. Technical Assistance	985	1,000
5. Federal Agency Administration	600	316
Subtotal, Non-Highway Programs	$39,700	$16,716
Subtotal, Development Programs	$144,690	$46,716
II. Salaries and Expenses		
A. Federal Share of Administrative Expenses	$ 2,208	$ 2,282
B. Federal Co-Chairman's Office & Office of Inspector General	1,002	1,002
Subtotal, Salaries & Expenses	3,210	3,284
GRAND TOTAL	$147,900	$50,000

*After Gramm-Rudman-Hollings reduction of $2,100 thousand.

TOTAL OPERATING BUDGET

	(thousands of dollars)		
	1989 Actual	1990 Enacted	1991 Estimate
1. Appropriations:			
Appalachian Regional Dev. Programs	$108,100	$144,690	$46,716
Salaries and Expenses	2,600	3,210	3,284
Total Appropriation	$110,700	$147,900	$50,000
2. Other Funding Sources:			
States Contribution to Commission Admin. Expense	$ 2,050	$ 2,208	$ 2,282
States' Washington Office	282	350	375
Repayment of Housing Loans	---	2	---
Recovery of Prior Year Obligations	4,819	---	---
Total, Other Funding	$ 7,151	$ 2,560	$ 2,657
3. Use of Prior Year Funds:			
A. Unobligated Balances Brought Forward:			
Appropriations:			
Approved, not obligated	$ 6,191	$ 5,489	$ ---
Other Balances	29,525	6,007	---
Other Funds	772	701	431
Subtotals	$ 36,488	$ 12,197	$ 431
B. Unobligated Balances Carried Forward:			
Appropriations:			
Approved, not obligated	$ -5,489	$ ---	$ ---
Other Balances	-6,007	---	---
Other Funds	-701	-431	-109
Subtotals	$-12,697	$ -431	$ -109
C. Unobligated Balances Used	$+24,291	$+11,766	$ +322
4. Total Obligations, Gross	$142,142	$162,225	$52,979

PROPOSED APPROPRIATION LANGUAGE

APPALACHIAN REGIONAL COMMISSION

For expenses necessary to carry out the programs authorized by the Appalachian Regional Development Act of 1965, as amended, notwithstanding Section 405 of said Act, and for necessary expenses for the Federal Co-Chairman and the alternate on the Appalachian Regional Commission and for payment of the Federal share of the administrative expenses of the Commission, including services as authorized by Section 3109 of Title 5, United States Code, and hire of passenger vehicles, to remain available until expended, [$150,000,000]. $50,000,000

APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM

	(thousands of dollars)			
	1989 Actual	1990 Enacted	1991 Estimate	Increase or (Decrease)
Appropriation	$ 69,169	$104,990	$ 30,000	$-74,990
Obligations, net	$ 71,562	$108,286	$ 30,000	$-78,286

Budget Request

The amount of $30 million is requested to provide for continued progress on the Appalachian Development Highway plan. The funds for 1991 would be used to assist the Appalachian States in contracting for construction, right-of-way purchase and engineering of a portion of some 929 miles remaining for construction as of September 1989. At that date, 2,096 of the 3,025 miles authorized by the Congress for the system had been contracted for construction of which 1,999 miles had been completed, virtually all open to traffic.

Five corridors are currently completed. They are "I" in Kentucky from Whitesburg to Winchester (126.2 miles), "L" in West Virginia from Beckley to Sutton (69.7 miles), "R" in Kentucky from Compton to Prestonsburg (Kentucky Mountain Parkway-existing route), "B-1" from Greenup, Kentucky to Portsmouth, Ohio (12.6 miles) and Corridor "P" from Mackeyville to Milton, Pennsylvania (59.5 miles). Construction is underway on the remaining sections of Corridor "E" from Morgantown, West Virginia to Hancock, Maryland (112.4 miles).

The current short-term priority plan would complete Corridor "G" from Pikeville, Kentucky to Charleston, West Virginia (106.7 miles), Corridor "N" from Corridor "E" in Maryland to Ebensburg, Pennsylvania (68.1 miles), and Corridor "W" from Greenville, South Carolina to Hendersonville, North Carolina (39.7 miles) and Corridor "X" in Alabama and Mississippi (109.1 miles). In addition, Corridor "D" from Cincinnati, Ohio to Bridgeport, West Virginia would be 98 percent complete (251.9 miles) and Corridor "T" from Erie, Pennsylvania to Binghamton, New York (253.1 miles) will be about 96 percent complete, with the remaining portions consisting of 4-lane highways.

Although Corridor "B" would be only 84 percent complete from its termini at Asheville, North Carolina to Portsmouth, Ohio (295 miles), those portions of Corridor "B" in Kentucky, Virginia and North Carolina would be complete. Tennessee has scheduled construction on the remaining sections of Corridor B. If construction proceeds as scheduled in Tennessee, the Corridor would be 100 percent complete between these termini.

Budget and Program Comparative Data

The development highway program includes three sub-programs with funding as follows:

	Cumulative Obligation (millions of dollars)		
	Thru 1989 Actual	Thru 1990 Enacted	1991 Estimate
Development Highways	$3,261.9	$3,362.5	$3,388.2
Access Roads	203.6	210.0	213.0
Administration and Special Planning	30.4	31.7	33.0
Total	$3,495.9	$3,604.2	$3,634.2

	Annual Obligation Amounts (thousands of dollars)			
	1989 Actual	1990 Enacted	1991 Estimate	Increase or Decrease
Development Highways	$ 67,225	$100,599	$ 25,700	$-74,899
Access Roads	2,999	6,367	3,000	-3,367
Administration and Special Planning	1,338	1,319	1,300	- 19
Subtotal, Net	$ 71,562	$108,286	$ 30,000	$-78,286
From prior year balance	-2,393	-3,296	---	+3,296
Appropriation	$ 69,169	$104,990	$ 30,000	$-74,990

The proposed funding would finance a program which by September 30, 1991, is anticipated to result in a total of 2,126 development highway miles and 890 access road miles either contracted for construction or already completed. Adding the additional mileage for which right-of-way acquisition will have been obligated, there will be by the close of FY 1991 a total of an estimated 2,260 development highway miles with obligation commitments. The following table summarizes the current and projected status of highway mileage construction as compared with the maximum mileage now authorized under the Appalachian Act.

APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM

	Status of Sept. 30, 1989				
	Miles in Category	Cumulative Miles	%	Miles Est. Sept. 1990	Miles Est. Sept. 1991
Construction completed	1,998.9	1,998.9	66.1	2,020.0	2,050.0
Construction underway	96.8	2,095.7	69.3	2,120.0	2,126.0
ROW in process	143.9	2,239.6	74.0	2,260.0	2,260.0
Design begun	390.7	2,630.3	87.0	2,650.0	2,650.0
Total eligible for construction		3,025.0	100.0	3,025.0	3,025.0
Total authorized by Congress		3,025.0		3,025.0	3,025.0

Program Background

One of the major factors which contributed to Appalachia's relative economic stagnation was its isolation. This isolation resulted primarily from the difficulties of transport in a rugged region. Roads have been expensive to build and, as a result, roads were built to "follow the topography" in order to minimize costs. Consequently, major national transportation arteries were built to bypass Appalachia rather than go through it despite its large population. Thus, what evolved in Appalachia was a system of winding roads following stream valleys and troughs between the mountains. In general, these roads were, more often than not, narrow two-lane roads that could be squeezed into the limited available space. The resulting system, characterized by low travel speeds, long travel distances due to the winding roadway pattern, unsafe roads built to poor design standards, short sight distances, and extremely high construction costs, profoundly discouraged commerce and industrial development. With the exception of some communities located on major east-west routes, most Appalachian communities were not able to compete for large employers due to poor access to national markets and because commutation was so difficult that the size of available labor pools were severely limited by the transport system itself.

In response to these conditions, Congress in 1965 authorized construction of the Appalachian Development Highway System to connect major Federal highway arteries and open areas of dense population ignored by interstate routes. The Act authorized "construction of an Appalachian Development Highway System serving the Appalachian Region which, in conjunction with the interstate system and other federal-aid-highways in the Region, will provide a highway system which will open up an area or areas with a developmental potential where commerce and communication have been inhibited by lack of adequate access."

Construction of the Appalachian system, complementary to the interstate routes previously authorized by the Congress, is regarded by the Commission as the key to an accelerated rate of economic growth in the Region. The designated system serves to encourage the location of new industrial and commercial enterprises in the Region. Of equal significance is the fact that many of these highways facilitate commutation from rural but heavily populated areas to jobs in the major communities and cities.

Within the authorizations provided by the Congress, the Commission acts to provide planning allocations to each state in both the development highway and access road programs in advance of the appropriation. With this advance notice of the approximate amount of funds which will be available, states are better able to plan their future construction needs and to initiate, at an earlier time, the design work and right-of-way acquisition necessary before construction can begin. The following table summarizes the allocations of authorizations by the major highway subprograms, dependent upon the receipt of appropriations. These funds are further allocated among the states, but can be adjusted among states so that unused allocations may be utilized by another state which is ready to proceed with construction. The Commission's highway allocation procedure provides incentives for states to more rapidly commit their highway funds. Under this procedure, as much as 30 percent of a lagging state's annual allocation can be transferred without repayment to others who are in a position to commit these funds on their portion of the Appalachia highway system. This aids in assuring continued progress in getting various portions of the system underway.

	Authorizations and Allocations (millions of dollars)		
	Thru 1989 Actual	Thru 1990 Enacted	1991 Estimate
Cumulative Authorization	$3,751.1	$3,856.1	$3,886.1
Less Authorizations lapsing	-251.9	-251.9	-251.9
Appropriations:			
Cumulative	3,499.2	3,604.2	3,634.2
Current Year	69.2	105.0	30.0
Allocations by Program: (Cumulative)			
Development Highways	3,252.2	3,355.7	3,384.4
Access Roads	215.4	215.6	215.6
Administration & Special Planning	31.6	32.9	34.2
TOTAL	$3,499.2	$3,604.2	$3,634.2

The utilization of the amounts allocated to the states is shown on Table I, following. As indicated in that table, the Commission makes several allocations to the states and has adopted a system of allocations with major principles as follows:

-- In order to provide advance notice to states on probable funds that will be available to each state the Commission has, after each new authorization, allocated funds for both the development highway and access road programs by state through the period of new authorization. Presently these allocations, based upon appropriations to date and the Commission's priority plan, have been projected through FY 1991.

-- Based upon actual appropriations, ARC issues final allocations at the beginning of each fiscal year. Each state's final allocation consists of two portions: a base allocation consisting of 70 percent of the total; and a supplemental allocation consisting of the remaining 30 percent.

-- To assure continued progress on the highway system, states able to utilize more than their total allocation are permitted to do so if other states are not able to use all of their allocation.

The system has worked well in encouraging a faster pace of construction among the states. In the last six years, virtually all available highway appropriations have been obligated. At the same time, highway construction prefinanced by the states, which was nonexistent in 1976, rose to $117 million in 1979, $274 million in 1988, and $270 million at the close of 1989.

TABLE I
APPALACHIAN HIGHWAY PROGRAM OBLIGATION NEEDS
State by State Summary
(thousands of dollars)

Development Highways	Obligated thru 1989	Est. State Capabilities thru 1990	Estimated Obligations thru 1990	1991 Estimate
Alabama	$146,704	$167,634	$163,585	$165,894
Georgia	98,824	150,948	101,855	103,296
Kentucky	516,781	587,961	520,681	523,134
Maryland	134,823	179,587	137,605	139,059
Mississippi	99,792	115,359	115,010	116,374
New York	281,401	308,546	284,955	286,510
North Carolina	155,450	160,151	159,775	161,497
Ohio	125,836	130,609	128,748	130,233
Pennsylvania	527,710	546,604	536,250	540,327
South Carolina	15,324	16,219	16,219	17,250
Tennessee	342,061	397,809	348,457	350,702
Virginia	136,029	140,595	138,948	140,435
West Virginia	680,772	710,978	710,511	713,588
Adjustments and Slippage	364	---	-129	-129
Subtotal	$3,261,871	$3,613,000	$3,362,470	$3,388,170
Access Roads	203,633	210,000	210,000	213,000
FHWA-Admin.-Misc.	30,410	31,600	31,729	33,029
TOTAL	$3,495,914	$3,854,600	$3,604,199	$3,634,199
Appropriations Available	$3,499,209	$3,604,199	$3,604,199	$3,634,199
Amount Prefinanced	270,457	260,000	260,000	270,000
Unobligated Balances	3,296	---	---	---

*Additional Prefinanced amounts.

ALA	$ 8,476
GA	52,124
KY	70,596
MD	45,529
MS	7,211
NY	21,843
OH	4,773
TN	55,339
VA	4,566
TOTAL	$270,457

TABLE II

APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM

MILEAGE SUMMARY

			CUMULATIVE STATUS AS OF SEPTEMBER 30, 1989			
State	Total Corridor	Eligible for Construct.	Design, RW Construct. completed or underway	RW Construct. completed or underway	Construct. completed/ underway*	Construct.** completed
Alabama	244.4	232.4	197.3	125.8	109.3	98.9
Georgia	135.2	122.8	132.7	103.8	103.8	103.8
Kentucky	583.0	434.8	432.9	373.1	349.2	346.2
Maryland	86.8	83.2	77.0	77.0	77.0	59.4
Mississippi	119.8	116.8	116.8	82.1	66.8	51.8
New York	255.3	219.5	205.9	199.8	199.8	199.8
North Carolina	208.1	205.4	194.5	158.5	155.7	152.1
Ohio	289.3	201.6	177.8	161.3	146.0	146.0
Pennsylvania	509.0	453.5	290.2	226.5	207.9	204.5
South Carolina	30.7	22.9	22.9	17.2	16.6	16.6
Tennessee	340.5	330.1	286.8	259.1	242.0	206.3
Virginia	202.1	191.3	176.9	156.1	154.5	147.5
West Virginia	424.2	410.7	318.6	299.3	267.1	266.0
TOTAL	3,428.4	3,025.0	2,630.3	2,239.6	2,095.7	1,998.9
Estimated Status:						
September 30, 1990			2,650.0	2,260.0	2,120.0	2,020.0
September 30, 1991			2,650.0	2,260.0	2,126.0	2,050.0

* Includes 107 miles of construction prefinanced by States.

** Includes completion of partially constructed segments, e.g., two lanes paved. Of the total completed mileage 1,996 miles have been opened to traffic.

Access Road Program

The Commission's access road program has been an essential ingredient in the Commission's program to assist economic development in the Region. Unlike the development highway program which is an entire system planned in advance, the access road program consists of individual projects to meet specific local needs separately submitted by the states and individually approved by the Commission. Access roads are projects that must have an economic relevance that can be demonstrated which provide essential access to an industrial site or park, an educational or health facility, or to a commercially important timber production area. They are normally two-lane facilities -- less than one or two miles or a bridge -- with Federal assistance of up to 80 percent of total cost.

Since passage of the Appalachian Act of 1965, the Commission has currently authorized up to a maximum of $224.0 million for local access roads and designated development access roads. The Act presently authorizes up to 1,400 miles of access roads. About 980 miles are expected to be approved through FY 1991 with about $3 million anticipated for obligation in FY 1991. The last general allocation for the program was made in FY 1987. States may currently shift a limited portion of their Development Highway allocation into the access road program, although only a small number of states have so far elected to do so.

To meet requirements in several states for special access roads not included in the current access road allocations, the Commission had authorized a limited utilization of development highway allocations for special development access roads to be individually approved by the Commission. To be eligible for approval, a development access road was to meet a high regional priority, such as the facilitation of energy development or the provision of service to multi-state or other development projects of high regional significance, and possess significant prospects for providing high "benefit-cost" yields in terms of new job opportunities. The Commission also authorized states needing additional authorization to receive portions of authorizations unused by other states. States receiving authorization must fund the projects from their own development highway allocations. As projects were approved, the allocations were transferred to the access road program for program accounting.

After the individual access road projects are approved by the Commission, the projects are obligated by FHWA when the state or local government is authorized to proceed with the work. Since design and right-of-way acquisition precede advertising for bids for actual construction, there is a considerable time lag before funds are obligated. Table III indicates by state the status of the programs. Through September 30, 1989, 456 projects with a total cost of $352.8 million including ARC assistance of $222.5 million had been approved, of which $203.6 million has been obligated. Some 845 miles of access road projects were completed, and an additional 17 miles were underway.

Summary of Access Road Approvals and Obligations:

	(thousands of dollars)		
	Thru 1989 Actual	Thru 1990 Estimate	Thru 1991 Estimate
Approved Projects	$222,523	$224,000	$224,000
Obligated Projects	$203,633	$210,000	$213,000
Annual Obligations	$2,999	$6,367	$3,000

Table III

APPALACHIAN ACCESS ROAD PROGRAM FINANCING AND ACCOMPLISHMENTS

(thousands of dollars)

	Approved Projects 9/30/89	Cumulative Obligations Thru 9/30/89	Estimated Obligations Thru FY 1991
Alabama	$ 28,405	$ 28,402	$ 28,402
Georgia	12,377	12,377	12,377
Kentucky	6,619	6,555	6,555
Maryland	5,176	5,114	5,176
Mississippi	36,285	25,559	30,475
New York	9,139	9,138	9,139
North Carolina	10,075	9,995	10,015
Ohio	10,122	8,945	10,700
Pennsylvania	31,230	30,597	31,932
South Carolina	16,883	16,558	16,558
Tennessee	22,275	21,944	22,439
Virginia	7,604	7,507	8,007
West Virginia	26,333	20,943	22,880
Subtotal	$222,523	$203,633	$214,655
Less Slippage			-1,655
TOTAL	$222,523	$203,633	$213,000

	STATUS OF MILEAGE		
	Through 9/30/89	Sept. 30, 1990	Sept. 30, 1991
Miles Completed	845	850	860
Construction underway or completed	862	880	890
Miles approved	975	980	980

Statutory limitation on miles -- 1,400.

Administrative and Other Costs

Administration of the program is primarily through the Federal Highway Administration which handles the details of the construction program. For this purpose, the program finances a staff of 19 persons, primarily in the field offices of the Federal Highway Administration. During FY 1991, administrative costs are estimated at $1.3 million of which $1,190 thousand provides for project administration of the program in the Federal Highway Administration and $110 thousand for staff and computer costs at ARC.

STANDARD FORM 304
May 1964, Bureau of the Budget
Circular No. A-11, Revised
304-101

APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM
Administration and Planning
FHWA (unless otherwise indicated)

OBJECT CLASSIFICATION (in thousands of dollars)

Identification code		19 89 actual	19 90 estimate	19 91 estimate
	Personnel compensation:			
11.1	Permanent positions	791	851	866
11.3	Positions other than permanent	---	-18	18
11.5	Other personnel compensation	---	---	---
	Total personnel compensation	791	869	884
	Personnel benefits:			
12.1	Civilian	117	132	134
21.0	Travel and transportation of persons	107	113	114
22.0	Transportation of things	---	---	---
23.2	Rental payments to others	2	6	6
23.3	Communications, utilities and miscellaneous charges	---	---	---
24.0	Printing and reproduction	---	---	---
25.0	Other services	152	70	52
26.0	Supplies and materials	3	---	---
31.0	Equipment	6	---	---
99.0	Total obligations	1,178	1,190	1,190
	ARC Staff & Computer Services	160	129	110
	Total Obligations	1,338	1,319	1,300
	Total No. of Permanent Positions	19	19	19
	Total compensable work-years	19	20	20
	Average GS grade	11.75	11.75	11.75
	Average GS salary	$42,302	$43,496	$43,825

AREA DEVELOPMENT PROGRAM

	(thousands of dollars)			
	1989 Actual	1990 Enacted	1991 Estimate	Increase or Decrease
Appropriations	$34,731	$35,515	$12,516	$-22,999
Obligations	$61,341	$42,552	$12,516	$-30,036

Area Development Programs. The budget request is for $12.516 million, compared with $35.515 million approved for FY 1990. The budget request anticipates a balanced use of the Commission's non-highway programs with equal emphasis on human and community development projects. Of the amount requested, $6.1 million would be used for human development projects including a new youth leadership initiative, and $6.1 million would be used for community development projects. Federal agencies that assist in administering these programs would require $316 thousand.

	(thousands of dollars)			
Program, by type	1989 Actual	1990 Enacted	1991 Estimate	Increase or Decrease
Community Development	$51,351	$30,888	$ 6,100	$-24,788
Human Development	7,386	6,600	6,100	-500
Administration	701	600	316	-284
Subtotal, Approvals	$59,438	$38,088	$ 12,516	$-25,572
Less project savings	$-4,615	$ ---	$ ---	$ ---
Projects in Transit, Net	+6,518	+4,464	---	-4,464
Net Obligations	$61,341	$42,552	$ 12,516	$-30,036
Financing				
Obligations	$61,341	$42,552	$ 12,516	$-30,036
From Prior Year Balance	-26,610	-7,037	---	+7,037
Appropriation	$34,731	$35,515	$ 12,516	$-22,999

Budget for 1991

The Area Development Program is designed to maintain the momentum of economic progress and to help the regional economy be more competitive while continuing to assist the poorest communities in providing basic services and a decent quality of life for their residents. Emphasis is placed not only on area economic development activities but equally on human resources -- providing educational opportunities through basic skills, workplace literacy and drop-out recovery and other initiatives in infant mortality reduction and child care.

Program for 1991

1. **Community Development Programs.** Funds are provided by allocation to each of the Appalachian states for area development projects to promote small business development, address problems of the infrastructure and environment, and provide

assistance to local governments for more effective delivery of programs and services. Projects are generally related to creation of jobs, but special funding and criteria are used to assist the Region's 90 most distressed counties in providing basic services to their residents. (See description below.) The budget request provides $6.1 million with the project distribution as follows:

	(thousands of dollars)		
	1989 Actual	1990 Estimate	1991 Estimate
Infrastructure/Environment	$38,405	$21,000	$ 2,300
Business Development	10,011	6,488	2,200
Local Government Assistance	2,935	3,400	1,600
Total	$51,351	$30,888	$ 6,100

2. Human Development Programs. A funding level of $6.1 million for 1991 will sustain the Commission's efforts to tackle some of the Region's most intractable problems, through programs in infant mortality, physician recruitment, school dropout prevention, adult literacy, vocational education improvement, and technical assistance to educational reform efforts. In FY 1991 the Commission will also undertake a youth leadership development initiative to encourage greater participation by youth in the future of their communities. Approximate project distribution is estimated at:

	(thousand of dollars)		
	1989 Actual	1990 Estimate	1991 Estimate
Education and Job Training	$ 6,107	$ 5,600	$ 4,300
Other Human Development	1,279	1,000	800
Youth Leadership	---	---	1,000
Total	$ 7,386	$ 6,600	$ 6,100

3. Administration by Other Agencies. Since many of the individual projects will be administered by other Federal agencies, an amount of $316 thousand is requested for other agencies administrative expenses, a reduction of $284 thousand from 1990.

4. Distressed Counties. The Commission provides special assistance to help the Region's most distressed counties by providing a special allocation annually that can only be used by the State within designated counties. This special allocation, about 20 percent of area development funds available, can be supplemented from a state's regular area development allocation. Additionally, designation permits funding by the Commission of up to 80 percent of eligible project costs rather than 50 percent, as for projects in non-designated counties.

Ninety of the Region's 397 counties are currently designated, and meet all three of the following criteria: (1) per capita market income of less than two-thirds the U.S. average; (2) unemployment rate of 150 percent or greater than U.S. average over a three year average; and, (3) poverty rate which is 150 percent greater than the U.S. average.

A listing of currently designated counties is provided on page 27.

1. **Community Development.** . . . . **$6.1 million**

Appalachian communities often have been without the resources to address the problems that impact private sector growth and quality of life. Lack of basic services, such as water and sewer, a shortage of developable land for industry and housing, periodic flooding in Appalachia's narrow valleys, limited bank participation in local economic development financing, poor labor-management relations and poor transportation access have been among the challenges faced by state and local elected officials and leaders attempting to shape change in the economic fortunes of their communities.

In the 1980s, new impacts have become evident in the Region. Global competition has brought additional challenges to Appalachia's existing manufacturing base; new, but unfunded mandates have been promulgated to protect the environment for future generations; fiscal and management capacity in rural local governments is not strong.

The area development program of the Appalachian Regional Commission is working with its member states and the local development districts (LDDs) to address these problems--with grants, and through technical assistance and research directed at finding new opportunities for Appalachia's industries and products, and help for its hard-strapped local governments.

Projects and programs assisted generally fall into three board categories: (1) Environment and Infrastructure; (2) Business Development; and (3) Community Development and Local Government Assistance. Recent examples of program thrust and funding for each of these categories follows:

A. Addressing Infrastructure and Environmental Problems

A 1988 EPA report noted that recent Federal environmental regulations, including new controls on pesticides, drinking water quality, sewage treatment and garbage disposal, are likely to impose high costs on local citizens, particularly in small communities. By 1996, the average American household may be paying $100 a year more in charges, fees and taxes because of the new regulations, but the increase will be around $170 a year per household in towns with fewer than 2,500 people. The agency report suggested that even higher cost increases will make it harder to invest in business expansion and discourage start-ups, and noted a need for more technical assistance, changes in fee structures, grants to poor communities and incentives for cooperative ventures such as regional water systems. The need for this type of assistance is especially acute in Appalachia, where so many small communities face severe financial hardships.

Some of the state and local projects addressing environmental issues that were funded by the Appalachian Regional Commission last year include:

- a solid waste needs study in Alabama to establish priorities for improvements to solid waste systems in the 35 Appalachian Alabama counties. Work is being subcontracted by the state to the local development districts for planning implementation. The $210,000 ARC grant will be matched by state and local funds for a total cost of $420,000.
- support for an innovative program in West Virginia that will combine appropriate small flow technology for wastewater treatment with a community self-help program that will result in reduced construction, operation and maintenance costs for small rural communities that have been unsuccessful in meeting Clean Water Act requirements because of costs. The $98,814 grant to the Region 1 Planning and Development Council will utilize the services of the West Virginia Extension Service to work with 11 communities currently under court ordered consent agreements to provide wastewater treatment services for their residents.

- an extension of sewer service to a trailer park on Poor Valley Ridge and to the community of Sulphur Springs in Lee County, Virginia. The 121 households (69 percent low income) to be served by the project are currently served by failing septic systems, outdoor privies and direct discharge of raw sewage into area streams. The $354,621 ARC grant will also serve a new high school in the area.

- continuation of support for the Kentucky Rural Water Association Circuit Rider, which provides technical assistance and training for rural water system operators in water systems operation, maintenance and management. The $30,000 grant will help improve service delivery, management effectiveness and assist in the continued compliance with the Federal Safe Drinking Water Act. In the previous year, the circuit rider had made 140 technical assistance contacts and provided technical assistance to 71 different water systems in 31 counties in eastern Kentucky.

- a feasibility study for a six-county regional water system is being undertaken by the Kentucky River Area Development District with a $75,000 ARC grant. The system being studied would serve 28,000 people currently relying on unsafe and undependable water sources such as mine openings. Also to be served would be approximately 20,000 people in Hazard, Whitesburg, Jenkins, Hindman, Pippa Passes and other small communities. The envisioned system would require a water treatment plant located near Hazard and approximately 275 miles of water transmission lines within the six-county area.

- the Southern Tier West Regional Planning and Development Board in New York will develop a site specific industrial waste reduction plan for its three-county area with a $50,000 ARC grant. The plan will include alternate methods of waste reduction including recycling, modification of products being manufactured, changes in packaging of products of raw materials and reuse of waste products within plant or in neighboring plants. Sixteen firms in the area have committed cash match to the project; in addition, most of the companies have indicated that their engineer or plant manager will be available to work with the project team as an in-kind service to the project.

In addition to its project activities, ARC funding and staff technical assistance was provided for several state and multi-county workshops on environmental issues, a solid waste planning manual produced by Land-of-Sky Regional Council in North Carolina was distributed to states and districts throughout the Region, and a staff task group on solid waste issues was instituted. These activities are expected to continue and receive greater emphasis through FY 1991.

B. Business Development

Over the past 10 years, ARC assistance increasingly has been provided for research, technical assistance and project activities in the Region which are geared to finding new markets for Appalachian goods and products, or new investment opportunities in the Region. Commission conferences and workshops have been directed to the export potential of wood products from southern Appalachia; coal export, transportation and environmental issues; restoring competitiveness through technology development and commercialization of new products; the development of an aquaculture industry in Appalachia, and on various ways to stimulate growth in existing businesses and to promote new business startups. Research has been conducted on the potential of the continuing care retirement industry in Appalachia, and is soon to be underway on development of the hardwood industry, value added food processing and tourism development. The Appalachian Governors are using ARC research, technical assistance and grant funds to assist their economic development efforts in a number of innovative ways, for example:

- Pennsylvania is using the ARC program to help develop this Economic Development Partnership concept. At the local level, ARC funds are being used for business development incubators, adaptive reuse of abandoned steel plants in the Monongohela Valley, for procurement assistance to former suppliers of the now defunct VW plant in Westmoreland County, and for selected infrastructure investments serving industrial parks and other locally initiated activities. At the LDD level, Pennsylvania's ARC allocation supports a comprehensive program of business services, including financing, export and procurement assistance as well as specialized services to regional growth opportunities, such as the hardwood industry and the powder metals industry. At the state level, ARC resources are being used for initiatives in hardwoods and employer supported child care programs; to build a coordinated Export Partnership system with fast response, a common data base, and the involvement of the LDDs, local export programs and Pennsylvania Department of Commerce foreign trade representatives, as well as the State Export office; and consulting assistance to the Governor's Economic Development Rapid Response Team, to provide critical support in dealing with major dislocations, strategic regional projects and hazardous waste issues.

- Tennessee has designated technology transfer as one of its special strategic initiatives. For many years, Tennessee has possessed an untapped resource of technology-based research, development and manufacturing that has the potential of being the nucleus for new employment and economic growth. Oak Ridge National Laboratory, TVA and University of Tennessee (UT) are the cornerstones of this strategy, while a second area of opportunity centers around the USAF's Arnold Research and Development Center and the UT Space Institute in Tullahoma. In 1982, the Appalachian Regional Commission provided start-up funding for the Tennessee Technology Foundation, which provides services in market development, venture capital financing and product development, and is serving as a catalyst for the development of technology-based R&D, manufacturing and service industries. Originally focused on the Knoxville-Oak Ridge corridor, the Foundation has been expanded to a statewide institution. In FY 1989, the Commission approved a grant to the Foundation for a facility to house the Center for Advanced Space Propulsion in Tullahoma, which will be used for R&D of technologies for the commercialization of space. The Center will be operated as a joint venture by NASA, the UT Space Institute, UT-Calspan Center for Aerospace Research, with operational support from NASA.

- Ohio has used the Appalachian program to bolster resources available to the Buckeye Hills-Hocking Valley procurement technical assistance program, which has been identified by the state procurement program officials as the most successful of the offices supported by their statewide initiative. The Buckeye Hills-Hocking Valley office will receive additional resources for its FY 1990 operations from the Defense Logistics Agency, while Buckeye Hills-Hocking Valley will expand its business assistance resources with an ARC business revolving loan fund, capitalized initially at $200,000. The OMEGA LDD has received ARC funds for a trade specialist to distribute export leads and work with those companies in the district determined to have the most export potential, while Ohio's third LDD, OVRDC, has been undertaking work with EDA technical assistance funding on Appalachian Hardwood Marketing.

In FY 1991, the Commission will emphasize marketing of Appalachian products and services and a tourism development initiative, while continuing to support strategic economic development initiatives in the member states.

C. Local Government Assistance and Community Develoment

Community development assistance in Appalachia is directed primarily at two client groups: rural, hard-to-serve communities that are without the technical or financial resources to improve their standard of living without assistance; and communities undergoing fundamental changes in local economies and settlement structures. This latter group includes older urban settlements experiencing decline, as well as areas where new patterns of settlement require cost-effective design and delivery of public services.

Some of these communities face disastrous floods in narrow valleys, poverty, inadequate housing, lack of availability of land for development because of outside ownership and steep topography, inadequate public services, lack of recreational amenities, etc. Others have been hard-hit by long-term job losses, outmigration, the decline of Main Street and loss of tax revenues. Even in those communities where rapid growth is occurring and the future holds promise, tax revenues may come too late for a community to provide facilities and services needed immediately to accommodate the rapid rate of growth. Compounding the financial problem in most Appalachian communities is the lack of a planning capacity to analyze and prepare for impacts of growth, for improved facilities and services or to deal with environmental and social problems.

A major investment objective of the Commission is to "develop and strengthen local government through assistance to service consolidations and other institutional arrangements that will help local partners better sustain a climate for economic growth and stability". This is accomplished through grants for more effective delivery of programs and services on a multi-jurisdictional basis, such as circuit rider programs, as well as for housing, downtown revitalization and public service improvements. Examples of projects funded include:

- support for a two-year circuit rider demonstration in the Three Rivers Planning and Development District in Mississippi. The project will assist local county governments in financing a professional position to help local elected officials comply with current regulations and stay informed on changes impacting their areas of responsibility.

- recapitalization of the Kentucky Appalachian Housing Program (KAHP) which provides assistance to sponsors of housing for low-and moderate-income families throughout eastern Kentucky. Now in its 13th year, the program has assisted nearly 5,800 housing units, both new and rehabilitated, single family and multi-family, sales and rental. It is a program which is at the forefront in working in areas of critical shortages of affordable and decent housing.

- a $300,000 grant to Portsmouth, Ohio, for its $2.2 million downtown revitalization effort. The City was founded in 1803, but downtown development occurred predominantly during the late 19th and early 20th centuries. Late 19th century Victorian styles including Italianate and Victorian Gothic, are present in the downtown area, as is early 20th century Classical Revival architecture. Many upper stories have remained intact, while ground floor storefronts have been frequently altered. The renewal effort was spearheaded by two community groups that undertook a joint effort, with support from the Ohio Arts Council, to develop a community consensus on downtown renewal. In addition to assessments of property owners, the project has received commitments for private rehabilitation (interior and exterior) by the owners of 20 buildings and by 82 of the 149 businesses in the target area. The project will help many of these businesses retain employees and remain competitive; in addition, 25 local businesses have projected a total of 105 new full time equivalent jobs as a result of the improvements.

- continuation of the Kentucky Governor's Downtown Development and Revitalization Program Services program, which ARC has supported for nine years. The program assists participating communities with planning and technical assistance grants to implement community revitalization efforts through comprehensive downtown development plans, market analysis, traffic studies, streetscape and storefront design assistance, historic preservation plans, development of city ordinances and development and implementation of community fund-seeking strategies. All second to sixth class cities in Kentucky's Appalachian counties are invited to submit applications. The $300,000 ARC grant will assist approximately 30 communities in FY 1990.

- community advisors programs in New York's three Appalachian LDDs. In Southern Tier East, funds assist a field coordinator that works with local county industrial development agencies in standardizing information and identifying specific development opportunities and programs to market the area. In Southern Tier West, a circuit rider provides direct assistance to local governments in the development of water quality procedures, cooperative purchasing and provides leadership and training programs for local elected officials. In Southern Tier Central, assistance is directed toward management efficiency at the local government level, including computerization, as well as overall management skills.

2. Human Development . . . . $6.1 million

The Commission's program for Human Development includes three subprograms aimed primarily at improvements in the areas of (a) education and training of the potential workforce; (b) infant mortality reduction and related health programs; and (c) beginning in 1990, a new initiative toward the development of youth leadership in the Region.

A. Education

The Commission's primary thrust in education has been to upgrade the Region's manpower. Much of the effort has been toward (1) insuring that the Region's populace has access to secondary and post-secondary job-specific skill training; (2) retraining the labor force to meet changing job requirements; (3) ensuring that the Region's youth complete their education by providing dropout prevention and reentry programs; (4) customizing job training for specific employers located or moving into the Region; and (5) upgrading the educational climate of the Region as a whole to improve its educational capabilities.

At the Education Summit in Charlottesville, Virginia, President Bush and the Governors called for national education performance goals as the next step in the education reform. The Commission's progress parallels some of the goals addressed at the Education Summit by providing assistance for more comprehensive approaches to education improvement. Emphasis will be on school readiness, youth leadership development, improvement in school performance and training necessary for a competitive workforce.

The Region is comprised of almost 6 million children 18 years and younger. Almost 2.6 million students attend 4,000 rural schools many of which are in sparsely populated areas with the average school serving 400 students. It is difficult for many of these schools to function effectively because of their isolation, inadequate linkages with higher education institutions and problems in recruiting and retaining teachers.

American school children must become more competitive with the children of other nations if America is to stay in the forefront as a first rate economy. The models to insure a competitive education system are designed primarily for urban schools. These do not work well in Appalachia because the Region's schools are far more diverse than urban ones: demographics, cultural leadership, level of sophistication, and transportation and industry differences were overlooked by state and national education policymakers.

Key points to be made in this regard are:

- For economic growth, the Region needs educated leaders. Yet among those adults 25 and older in the Region, only 38 percent have attended at least one year of college, compared with 48 percent for the nation as a whole. Ways must be found to increase the college-going rate of the Region's young people.
- Recruitment and retention of teachers is a major obstacle to quality education. Salaries are much lower than the national average.
- The high school dropout problem in the Region is critical, particularly in Central and Southern Appalachia. While the U.S. rate is around 25 percent, the rate in Central and Southern Appalachia ranges from 30 to 40 percent. One-fourth of the Region's counties have dropout rates of 40 percent or higher. The school dropout problem is providing fuel to the still pervasive adult literacy problem.
- Requirements under reform legislation have proved burdensome to rural and isolated schools. Curriculum and credential mandates in areas such as physics, foreign language and science are going unmet because of insufficient resources.
- Distance from colleges and universities and between neighboring schools limits professional development and interaction among rural educators.
- Many schools still lack up-to-date text books, labs, libraries and specialized equipment.
- Instructional technology is coming slowly to the Region's small rural school districts. Many students still do not have access to computers nor is higher technology such as interactive video and distance learning used to improve curriculum offerings.
- Preschool education programs, the essential ingredient for education success, are absent in rural and poorer communities. Only a small percentage of children eligible for Head Start is being served.

The Region has made progress in its educational systems and delivery mechanisms over the past 25 years but substantial problems remain. ARC will address those problems in FY 1991 through the following programs:

Vocational Education

The Commission will continue to address the need to upgrade the secondary vocational system and technical schools for training entry-level employees, the unemployed and underemployed, including customized training to meet the specific needs of industry.

Education and Job Training

The courses teachers teach and innovative instructional methodologies would be the focus of general improvement of the Region's education systems. The targeted effort would be a partnership with national and local industry to establish: in-service training for teachers, adult literacy programs, basic skills development and establishing distance learning sites in isolated rural school districts for specifically focusing on improvement of science and mathematics instruction.

Assistance will also be extended to community and four-year colleges to develop programs to improve productivity and competitiveness of small and medium-sized manufacturing firms through adoption of technologically advanced equipment, new processes and management training.

How Recent Problems Were Addressed

During FY 1989, ARC directed $5.8 million to the most cost-effective methods of addressing some of the most pressing problems. Given the limited funds available, many projects were demonstrations designed to encourage other communities, institutions and states to attempt similar activities, while maximizing the impact of available resources.

Specific examples include:

o Almost $1.2 million in ARC funds was approved for 14 new dropout prevention programs and the continuation of 28 others. These programs are operational in six Appalachian States--Georgia, Kentucky, Mississippi, North Carolina, Tennessee and West Virginia. Almost $1.5 million was invested in workplace literacy and/or adult literacy in Georgia, Kentucky, Maryland, Mississippi, New York, Pennsylvania, South Carolina and Tennessee.

o A $300,000 grant was awarded to the Ohio Telecommunications Consortium project which embraces the Gallia County Local Schools, Rio Grande College, Buckeye Hills Career Center and Oak Hill Union Schools in Jackson County. A fiber optic/microwave television link will connect the four high schools in the Gallia County Local Schools, Oak Hill Union School, Buckeye Hills Career Center and the Rio Grande Community College. This project is designed to establish a technology-based instructional delivery system that will provide students in southeastern Ohio courses not otherwise available to them.

o A $115,000 grant was awarded to Vocational Rehabilitation Services in Binghamton, New York, a not-for-profit organization whose mission is training disabled persons and providing jobs for them. VRS will establish an incubator training project to assist in the start-up, survival and expansion of mid-tech businesses with the potential for hiring disabled workers.. The incubator will lease low-cost space to six small businesses and provide a variety of administrative and operational services. It will train and employ 30 individuals with psychiatric disabilities through the provision of vocational skills assessment, vocational remediation and appropriate job placement.

o Corning Community College in Corning, New York, received $92,400 to provide instruction in high technology systems and manufacturing concepts for 170 older workers whose skills could not be improved through on-job-training at the Dresser-Rand plant located in Painted Post, New York.

B. Other Human Development Programs

In addition to education, the Commission makes limited investments in other human resource areas, specifically child care and health. The Commission has identified the reduction of infant mortality as a primary health goal. The Commission is particularly interested in projects which improve or expand prenatal care in areas of the Region where infant mortality rates exceed the national average by at least 50 percent, or where relevant data indicate significant prenatal care delivery problems. In child care, the Commission focuses on establishing or adapting child care programs which meet the needs of specific industries and their employees.

How Recent Problems Were Addressed

During the 1980s the Region improved much faster than the U.S. on most health indicators. Most important was the attainment of a long-term Commission goal to put at least some basic health care within reasonable distance of all Appalachians. Over 300 primary health care programs received assistance, achieving the objective of making primary health care physically accessible (within 30 minutes) of every Appalachian resident. In addition, the health care industry produced over 320,000 jobs through the mid 1980s, making it one of the fastest growing sources of jobs.

Specific examples of Commission-sponsored health projects in the last few years have included the following:

- In FY 1989 North Carolina combined $500,000 of ARC funds with a state match for an innovative project to reduce infant mortality. Funds are being used to develop community-based services through the Maternal and Child Care Section of the State Department of Human Resources. Local county needs will be identified and specific problems addressed on a county-by-county basis. ARC funds will suppport these services which, among other things, include: public information and education; payment for special diagnostic and laboratory tests; incentive for early prenatal care.

- In response to increasing shortages of prenatal care, Alabama received $800,000 of ARC funds to expand existing services by establishing a prenatal clinic in each of its 35 Appalachian counties. The state expects the project to reach 5,800 indigent women and 11,500 infants. Like other health projects of the Commission, the Alabama project was developed in cooperation with the appropriate Federal DHHS officials to assure that public funds would be used to best effect and that the project established the necessary ties among related programs.

Fiscal Year 1991 Program

In FY 1991 the Commission's health activities will focus on infant mortality reduction. As in the past, ARC would provide technical assistance and start-up funds (not continuing subsidies), and cooperation with public and private entities would be emphasized to make the best use of existing resources. Commission funding would generally not be made available for construction of health facilities.

Child Care

The Commission's Child Development Program served close to 3 million children between 1969 and 1982. Approximately $166 million went toward rural underserved areas of Appalachia. The most frequent was a comprehensive center-based child care format addressing the needs of the working poor with referrals to other service agencies when needed.

In 1983, with drops in Commission funding, child development programs were altered to target only child care for specific industries where the need to create and retain jobs was critical to the economic stability of the community. Since 1983, the Commission had provided almost $5 million in employer-related child care initiatives.

Examples of such initiatives include:

- The Bowdon Child Care Center in Carroll County, Georgia. This center serves the needs of working mothers employed in four apparel manufacturing companies in the county. The four apparel companies constructed the facility while the ARC funds were used for purchasing equipment and general operational costs in starting the project the first year.

- The Corning Area Child Care Resource and Referral Service project in Corning, New York, is providing family day care service for employees of Corning Glass Works. The Corning Glass Works Foundation provides funds to assist with the delivery of the services.

- In rural Delaware County in Appalachian New York, a lack of available and affordable child care prompted Learning Time Day Care Center, Inc. to develop and implement the Hobart Day Care and Family Day Care Development Center to serve employees at Graham Laboratories, Pharm Tech and Community Hospital in Stamford. The majority of employees at these two industries and the hospital are female, thus creating a need for child care since there are a limited number of centers in the county. The center-based services are located in the same facility that houses a local Head Start program. Where possible, services are coordinated and shared between the two programs.

FY 1991 Program

Child care is particularly crucial to industries where there is a high number of women employed. The Commission will continue to assist projects which relate to job retention and creation.

C. Youth Leadership Development

The youth in Appalachia today are beneficiaries of a quarter century of national commitment to improving economic opportunity, transportation, education, health care and quality of life. They, in turn, represent a critical resource for the future of the Region. As the number of new work force entrants declines in Appalachia, it becomes increasingly important that all of the Region's young people, even the most disadvantaged, achieve their full potential and become full participants in the life of their communities. Economic growth cannot be sustained in the 21st century unless the young people of today appreciate and accept the leadership challenges of tomorrow. Unfortunately, many of the Region's youth today have little interest in community service and involvement. Many feel powerless in the face of economic development processes and national affairs which seem alien to them.

Engaging youth in various service learning experiences creates genuine work and useful products, teaches basic life skills for generic employability, and yields substantial economic benefits to the community. A new Commission leadership initiative will build on existing service program models in establishing activities in rural and underserved areas. To facilitate the service/leadership effort, the Commission will work with state, local and national organizations and seek private industry participation to create partnerships between community-based organizations and schools.

The following principles will guide implementation of the youth leadership project:

Youth involvement. The perceptions and expectations of the youth of Appalachia are an important resource for shaping the Region's future. To the maximum extent possible, research and other project activities concerning the future of Appalachia's youth should involve youth themselves as partners. Such involvement is itself an exercise in leadership development.

Community participation. The Commission recognizes that its limited resources alone cannot provide programs for all of the youth of the Region. Initiatives are intended to stimulate the public and private sectors alike to address needs for youth leadership development and to encourage broad community support for youth leadership programs. Consideration should be given to the development of programs sponsored beyond school systems.

Coordination and training. Good youth programs do not just happen. There must be adult leadership and commitment along with knowledge and experience to provide direction, motivation and supervision to young people. In areas where there is an absence of adult leadership to eliminate barriers to youth involvement, training opportunities should be made available.

Specific initiatives will include, but not be limited to, the following:

- Economic development or entrepreneurial programs involving youth with business and civic groups to address economic development concerns in the community, such as community improvements and downtown beautification;
- Mobilization of local business and civic organizations to provide special help to disadvantaged youth;
- Short-term internships for youth in county/municipal government, libraries and other community facilities, and businesses such as insurance companies, banks, legal offices, utilities and service industries, which will involve youth with professional role modes;
- Youth initiatives to improve local education or training opportunities, such as tutoring, literacy efforts, or peer counselling;
- Involvement of youth in improvements of recreation and tourism in communities; and
- Planning internships in local development districts.

3. Administration of Area Development Program

Under the Area Development Program, the Commission will continue to approve individual projects under the terms of the applicable sections of the Act. The individual projects, as in the past, are then administered and monitored by those Federal agencies which, under the Appalachian Act, have been given the responsibility for administration of the project details, and the Commission reimburses these agencies for their cost in administering the program. The estimate for FY 1991 is $316 thousand, a reduction of $284 thousand from 1990. The following table summarizes these costs by the program served.

	(thousands of dollars)		
	1989 Actual	1990 Enacted	1991 Estimate
Health and Child Development HHS	$347	$350	$210
Education Department of Education	103	105	50
Supplemental Grants Agriculture and Others	156	110	56
Contingencies and Other Agencies	95	35	---
TOTAL	$701	$600	$316

4. **Designated Distressed Counties Program.**

As indicated above, the Commission provides special assistance to help the Region's most distressed and under developed counties (90 of 397). In those counties ARC may provide grants for up to 80 percent of total approved project costs.

The following 90 counties in the Appalachian Region are currently designated for special assistance under the Commission's Distressed Counties program having met all three of the following criteria:

- o Per capita market income of less than two-thirds (67 percent) the U.S. average;
- o Unemployment rate of 150 percent or greater than the U.S. average over a three year average; and
- o Poverty rate which is 150 percent greater than the U.S. average.

Currently Designated Distressed Counties include:

- o Alabama -- (8) Bibb, Cherokee, Chilton, Clay, Lawrence, Pickens, Randolph, and Talladega
- o Kentucky -- (36) Bath, Bell, Breathitt, Carter, Casey, Clay, Clinton, Elliott, Estill, Floyd, Harlan, Jackson, Knott, Lawrence, Lee, Leslie, Letcher, Lewis, Lincoln, McCreary, Magoffin, Martin, Menifee, Montgomery, Morgan, Owsley, Perry, Pike, Powell, Pulaski, Rockcastle, Russell, Wayne, Whitley, and Wolfe
- o Mississippi -- (9) Denton, Chickasaw, Choctaw, Clay, Kemper, Marshall, Noxubee, Tippah, and Winston
- o North Carolina -- (2) Graham and Swain
- o Ohio -- (2) Adams and Pike
- o Tennessee -- (16) Campbell, Cocke, Cumberland, Fentress, Grainger, Grundy, Hancock, Jackson, Johnson, Marion, Monroe, Morgan, Overton, Pickett, Polk, and Scott
- o Virginia -- (2) Buchanan and Lee
- o West Virginia -- (15) Barbour, Braxton, Calhoun, Clay, Doddridge, Gilmer, Grant, Lincoln, McDowell, Mingo, Preston, Summers, Wayne, Webster, and Wyoming

STANDARD FORM 304
May 1969, Bureau of the Budget
Circular No. A-11, Revised.
304-105

APPALACHIAN HEALTH AND CHILD DEVELOPMENT
Administrative Costs
Department of Health and Human Services

OBJECT CLASSIFICATION (in thousands of dollars)

Identification code	1989 actual	19 90 estimate	19 91 estimate
Personnel compensation:			
11.1 Permanent positions	302	297	179
11.3 Positions other than permanent	---	---	---
11.5 Other personnel compensation	1	1	---
Total personnel compensation	303	298	179
Personnel benefits:			
12.1 Civilian	36	34	22
21.0 Travel and transportation of persons	8	8	5
22.0 Transportation of things	---	---	---
23.0 Rent, communications, and utilities	---	---	---
24.0 Printing and reproduction	---	---	---
25.0 Other services	---	10	4
26.0 Supplies and materials	---	---	---
99.0 Total obligations	347	350	210
Personnel Summary:			
Total No. of Permanent Positions.	7	6	4
Total compensable work-years.....	7	6	4
Average GS grade..................	12.00	12.00	12.00
Average GS salary.................	$43,285	$49,782	$51,091

STANDARD FORM 304
May 1959, Bureau of the Budget
Circular No. A-11, Revised
304-101

APPALACHIAN VOCATIONAL AND EDUCATION FACILITIES
Administrative Costs
Department of Education

OBJECT CLASSIFICATION (in thousands of dollars)

Identification code		19 89 actual	19 90 estimate	19 91 estimate
	Personnel compensation:			
11.1	Permanent positions	86	84	43
11.3	Other than full time permanent	1	3	---
	Personnel benefits:			
12.1	Civilian	12	12	7
21.0	Travel and transportation of persons	3	5	---
23.0	Rent, communications, and utilities	---	---	---
23.1	Rental Payments to GSA	---	---	---
26.0	Supplies and materials	1	1	---
99.0	Total obligations	103	105	50
	Personnel Summary:			
	Total number of permanent positions	2	2	1
	Total compensable work-years	2	2	1
	Average GS grade	9.50	9.50	9.50
	Average GS salary	$40,505	$42,235	$43,346

STANDARD FORM 304
May 1969, Bureau of the Budget
Circular No. A-11, Revised.
304-103

COMMUNITY DEVELOPMENT PROGRAM
Farmers Home Administration

OBJECT CLASSIFICATION (in thousands of dollars)

Identification code		19 89 actual	19 90 estimate	19 91 estimate
	Personnel compensation:			
11.1	Permanent positions	91	95	49
	Personnel benefits:			
12.1	Civilian	12	12	6
21.0	Travel and transportation of persons	4	3	1
25.0	Other services	49	---	---
99.0	Total obligations	156	110	56
	Personnel Summary:			
	Total compensable work-year	3	3	2

LOCAL DEVELOPMENT DISTRICTS AND TECHNICAL ASSISTANCE PROGRAM

	(thousands of dollars)			
	1989 Actual	1990 Enacted*	1991 Estimate	Increase Over 1990
Appropriation	$ 4,200	$ 4,185	$ 4,200	$ +15
Obligations	$ 3,888	$ 5,277	$ 4,200	$ 1,077

Program for 1991

An appropriation for $4.2 million is requested for this activity to finance the Federal contribution toward the administrative expenses of local development districts and to support a Commission technical assistance program.

The funds requested would provide $1 million for the Commission technical assistance program and $3.2 million for the support of multi-county development districts, the same amount appropriated for 1990 before Gramm-Rudman-Hollings reductions.

	1989 Estimate	1990 Enacted	1991 Request
Program, by Type:			
Local Development Districts:			
1989 Program	$3,644	$ ---	$ ---
1990 Program	233	3,201	---
1991 Program	---	---	3,200
Commission Technical Assistance	1,401	1,083	1,000
Subtotal Approvals	$5,278	$4,284	$4,200
Projects in Transit, Net	-1,390	+993	---
Obligations	$3,888	$5,277	$4,200
Less Prior Year Recovery	-204	---	---
Net Obligations	$3,684	$5,277	$4,200
Unobligated Balances			
Brought Forward	(-575)	(-1,092)	---
Approved Projects Not Obligated	-310	-993	---
Other Unobligated Balances	-265	-99	---
Unobligated Balances Carried Forward	(1,092)	---	---
Approved Projects Not Obligated	993	---	---
Other Unobligated Balances	99	---	---
Total Appropriation	$4,200	$4,185	$4,200

*After Gramm-Rudman-Hollings reduction of $15 thousand.

Local Development District Program .... **$3.2 million**

The Appalachian Regional Development Act, from its inception, clearly recognized the key role of multi-county planning and development agencies in economic development. This role is further emphasized by the continued annual financial support provided to the 68 districts by the Commission. As with most federal programs, there has been a reduction in funds available for program support. The Local Development District Program is no exception. In 1981 the annual rate of support for the districts was reduced from $5.0 million to $4.0 million. Again, in 1986 their support was reduced another 20 percent down to $3.2 million, where it remains today. The $3.2 million represents the minimum amount of support the Commission feels is needed to support the LDDs. This amount represents less than 10 percent of the districts' overall funds for administration and program services. Yet, it is a very important 10 percent inasmuch as it represents the cohesive element of their administrative support. For this reason the Commission requests $3.2 million for funding of programs to continue to strengthen and support the day-to-day operations of its multi-county development districts.

Over the past several years, increased responsibilities have been placed upon local development districts by the state, federal programs and local units of government. Some of those responsibilities have arisen in connection with block grant programs and proposals for transferring federal programs to state and localities. Local units of government are relying more and more on districts to reduce the costs of providing services. Other responsibilities arise from the fact that districts are beginning to promote and actively pursue a public/private partnership as a basis for developing and strengthening the local economy. In this regard, their activities in business development programs are varied - incubators, export development, small business and entrepreneurial programs, procurement programs. The Commission will continue to work with states in refining and identifying the role of development districts in the overall scheme of economic development.

Since 1980, districts are becoming more and more involved in business and enterprise development programs. Their activities include packaging loans, development of export and entrepreneurship opportunities, technical assistance to small businesses, procurement and technology transfer programs. They are becoming a very important player in rural development initiatives. To this end, it is felt that the current annualized rate of $3.2 million is the minimum necessary and the amount requested.

The following table shows actual amounts by state for 1989 and estimated amounts for 1990 and 1991.

STATE BY STATE SUMMARY OF ESTIMATED DISTRICT FUNDING
(By Program Year)

Basic Support Program Amounts	No. of LDDs	(thousands of dollars) 1989 Actual	1990 Enacted	1991 Estimate
Alabama	7	$365	$309	$309
Georgia	6	255	255	255
Kentucky	9	558	432	421
Maryland	1	71	75	59
Mississippi	4	205	167	156
New York	3	132	133	132
North Carolina	6	299	302	297
Ohio	3	136	173	136
Pennsylvania	6	587	499	404
South Carolina	1	97	97	97
Tennessee	5	270	269	269
Virginia	6	255	254	253
West Virginia	11	414	421	412
Special LDD Technical Assistance	---	---	48	---
TOTALS	68	$3,644	$3,434	$3,200

Commission Technical Assistance

The amount of $1 million is requested for Commission technical assistance, the same amount appropriated since 1982. Technical assistance projects cut across ARC program lines and provide the Commission member states with information to assist policy and program development. The two major components of the program will focus on regional analysis to monitor and assess factors affecting the Appalachian economy.

Program Area Research

Priorities for program area research are developed annually by the Commission and in FY 1990 include solid waste management in rural areas, regional education improvements, rural transportation, regional tourism initiatives, telecommunications technology in rural development infrastructure, and business and industry analyses.

The following are examples of projects completed or started during the past fiscal year.

Continuing Care Programs for Older Adults in Appalachia. The Commission is concerned about the economic impact of developing continuing care programs (CCRCs) in the Region because the demographic demand for continuing care is as great in the Region as elsewhere in the nation but the median income of the senior population is generally too low for the population to afford the most common forms of continuing care. Two parts of a three-part analysis of the regional economic potential of the continuing care retirement industry were completed in FY 1989. The first report is a detailed development handbook for local and state officials, including discussions of continuing care concepts, models, innovations, alternatives, financing, costs, and specific development steps. The report also reviews the current status, characteristics, and trends among the nation's 700 plus CCRCs and compares 16 CCRCs that operate in Appalachia with the national profile. It also analyzes senior demographic statistics for the Region compared with the nation as a whole. One of the hypothetical models discussed in the study is a community-based "CCRC without walls" for moderate income elderly. The report has been widely circulated in the Region and is expected to influence the development of the programs.

A second report presents marketing case studies based on three geographic areas and three different models of continuing care to demonstrate planning and marketing considerations which are essential to sound development of continuing care programs. The study areas are Guntersville, Alabama; Parkersburg, West Virginia; and the Big Sandy Region of Kentucky. Guidelines for analyzing the market and financial viability of selected models are included. The third report in this series will focus on the emergence of the long-term care insurance industry and its implication for the states.

Solid Waste Management. Significant changes in technologies, environmental requirements and state programs are expected to impact solid waste management dramatically in rural areas. Two studies were completed in this area. A how-to manual describes a component-oriented process for evaluating solid waste management alternatives in a multicounty area as resource management opportunities, rather than waste disposal problems or a group of regulatory headaches. The manual describes problems and solutions to organizing a committee, making decisions, and surveying solid waste activities. It explains the need for information about solid waste quantity and composition and different methodologies for getting it.

The second study includes the experience of six counties in Appalachian New York when they developed a multicounty market-oriented recycling program. Because of the complex picture of waste product markets and variations of waste management practices among the participating counties, an adaptable model was designed in which the general market and operating environment could be matched to local operation and management conditions. This approach provides each county with the ability to evaluate the recycling potential within its own jurisdiction and provides a tool to explore a regional approach for certain commodities where independent local recycling is not economically feasible. Further research on regional marketing of recyclables is anticipated in FY 1990-91 as states and local governments expand recycling programs.

Industry Analyses. The Appalachian wood and upholstered furniture industry is rapidly becoming international in scope and is important to the economy of the Region. In 1985 it provided 24,000 jobs, paid $331 million in annual payroll, and had approximately 704 manufacturing establishments. A four-part study on this Appalachian industry analyzes key international trends affecting the Appalachian wood furniture industry, gives an international profile as it relates to the Appalachian wood furniture industry, reviews the existing programs for export and international technology transfer, and recommends ways to increase export and international technology transfer activity. This study will provide the basis for a regional workshop for industry officials to be hosted jointly by Mississippi and Alabama.

In FY 1990, the Commission is also conducting studies to explore the economic potential of the food and hardwood products industries in the Region. In both these sectors, the member states of the Commission are interested in increasing "value added" employment as an alternative to the traditional extraction and export of raw material.

Health Care. Appalachia has more than a third of the nation's medically indigent population with income below the poverty level. "Studies of Issues Affecting Health Care for Indigent Appalachians" incorporates three papers. They focus on analyses of the size and characteristics of the medically indigent population in the Appalachian states, strategies that are either currently being tried or are under serious considerations by states across the country for assisting the medically indigent and people without health insurance, and estimates of the costs of providing Medicaid coverage for uninsured children and adults residing in the Appalachian states. This work was specifically undertaken to assist the various state task forces exploring ways to address the severe problem of medical indigence, especially in rural areas.

Local Government Issues. A demonstration project documents the recent attempt to consolidate the governments of the City of Sparta, Tennessee and White County. Consolidation is a controversial issue under consideration in many rural areas. The report documents formation of an advisory group, development of a metropolitan charter, the role of the state, and the election that failed to ratify the metropolitan charter.

The Commission followed this study with research to identify priority concerns affecting the capabilities of local rural governments to manage increasingly sophisticated problems. When completed, this information will be used to design more effective ARC and state technical assistance resources.

Commission Conference. A regional aquaculture conference was held in Birmingham, Alabama, November 13-15, 1989. This emerging industry involves both the economic development and agricultural organizations in rural areas. The purpose of the conference was to recommend solutions to policy issues and production-related problems so that continued growth of the aquaculture industry in Appalachia will be encouraged. The conference began with an overview of trends and issues for the industry in the United States and Appalachia. Concurrent sessions, conducted by experts, analysts, practitioners, and policymakers, identified major impediments to industry growth as: lack of coordinations, insufficient information available on industry production, a shortage in resources devoted to research and development, conflicting and sometimes duplication of rules and regulations set forth by state and federal regulations, and lack of an identification as an agricultural commodity. Some 300 participants involved with aquaculture throughout the Region attended the conference.

Regional Analysis

The Commission is a unique repository of information about the entire Appalachian Region and its economy. It compiles, maintains, and analyzes data on the Region from county level information collected by the U.S. government and others. The data are used to compare Appalachia with the rest of the United States on important measures like industrial composition, population change, migration, labor force, income, and poverty. Regional analysis activities enable the Commission to continually assess social and economic factors affecting the Region, to assist policy and program development, and to provide information about the Region to the states, Congress, and to the public. Examples of the recent studies are:

Distressed and Top-Performing Counties. Since Commission policy in part addresses the most severely distressed areas of the Region, data are assessed annually to describe the strongest and weakest areas. Three indicators, the latest per capita market income, the poverty rate, and the latest three-year average unemployment rate, are used as a composite variable to analyze the performance of the nation's and Appalachia's counties. This analysis enables the Commission to test the appropriateness of its designations of distressed counties in ARC programs. The analysis divides counties into five performance categories which are mapped to identify clusters of distressed and strong areas in the U.S. The maps have been used by the public and private sector to assess the strength of the economies in different regions of the nation.

SALARIES AND EXPENSES

	(thousands of dollars) 1989 Actual	1990 Enacted	1991 Estimate	Change from 1990
Appropriations	$2,600	$3,210	$3,284	$ +74
Obligation	$2,588	$3,229	$3,284	$ +55

The Salaries and Expenses appropriation provides for the full cost of the Federal Co-Chairman and immediate staff and the contribution by the Federal government of fifty percent of the administrative expenses of the Appalachian Regional Commission. The budget request for 1991 is for $3,284 thousand, an increase of $74 thousand over 1990 appropriations:

		(thousands of dollars) 1989 Actual	1990 Enacted	1991 Estimate	Change from 1990
1.	Federal Co-Chairman:				
	A. Immediate Staff	$ 538	$ 671	$ 652	$ -19
	B. Inspector General	---	350	350	-0-
	Subtotal, Federal Co-Chairman	$ 538	$1,021	$1,002	$ -19
2.	Commission administrative expenses (50 percent Federal contribution)	2,050	2,208	2,282	+74
	Total Obligation	$2,588	$3,229	$3,284	$ +55
	Appropriation	$2,600	$3,210	$3,284	$ +74

1A. Federal Co-Chairman and Staff

The request of $652 thousand for the Federal Co-Chairman and staff provides for a Federal staff of eight persons with their related travel, personnel benefits, and other costs. The Federal Co-Chairman's staff is paid entirely by the Federal government and assists in carrying out the Federal Co-Chairman's responsibilities including handling relationships with other Federal agencies, the Congress and the states and the financial management of the Appalachian Regional Development Program as delegated by the President. The amount requested is the same as the amount appropriated for FY 1990.

1B. Inspector General

The Inspector General Act Amendment of 1988 (P.L. 100-504) required ARC to establish an independent Office of Inspector General in FY 1989. The Inspector General reports directly to the Federal Co-Chairman.

Based on a study of the needs of an Inspector General, the Federal Co-Chairman is recommending an annual budget of $350,000. This would cover expenses for two positions - the Inspector General and a confidential secretary - with travel and office expenses. It would also provide $178,000 to contract for the conduct of audits, investigations and independent legal counsel as required, without building up a permanent staff. The request is the same amount appropriated for in 1990.

2. Appalachian Regional Commission Administrative Expenses

While the expenses of the Federal Co-Chairman's immediate staff are paid solely by the Federal government, the thirteen states of the Appalachian Region have responsibility for providing one-half of the administrative expenses budget of the Appalachian Regional Commission. The states' share is provided through contributions from each of the thirteen Appalachian states. The table below reflects the status of all administrative costs of the Commission staff.

	(thousands of dollars)			
	1989 Actual	1990 Enacted	1991 Estimate	Change from 1990
State Contribution	$2,050	$2,208	$2,282	$ +74
Federal Contribution	2,050	2,208	2,282	+74
Prior year balances used	71	270	322	+52
TOTAL COSTS	$4,171	$4,686	$4,886	$+200

The requested Federal contribution, when matched by state contributions and the use of prior year balances, will provide a budget for 1991 totalling $4,886 thousand, an increase of $200 thousand from 1990. This will support a staff of 55 persons, down from a peak of 115 persons in 1980. The increased amount results primarily from increased personnel costs.

	(thousands of dollars)			
	1989 Actual	1990 Enacted	1991 Estimate	Change from 1990
Personnel Compensation	$2,531	$2,800	$2,975	$ +175
Personnel Benefits	434	475	512	+37
Travel	52	85	85	---
Rent to Others	503	565	556	-9
Communications, Utilities, etc.	187	280	264	-16
Printing	139	130	139	+9
Other Services	221	285	285	---
Supplies	55	45	50	+5
Equipment	49	21	20	-1
TOTAL	$4,171	$4,686	$4,886	$+200

Office of the Executive Director

The Executive Director is the chief administrative officer of the Commission staff. He has responsibilities for carrying out the administrative functions of the Commission, for direction of the Commission staff and for assisting the Commission and the states in carrying out the Appalachian Regional Development Programs. This office is responsible for the overall direction of Commission staff in the execution of Commission policy including program development and the review of state plans and project applications from the states. Further, the Executive Director serves as principal Commission staff advisor to the states and Federal Co-Chairman on matters relating to Commission programs.

Program Operations

This unit comprises three divisions organized by program activities to handle the Commission's responsibilities for implementing the Appalachian regional development programs at the Federal, state and local level. These divisions are Community Development, Human Resources Development, and Economic and Program Analysis. Activities within these divisions include education, training and manpower recruitment, community development for distressed counties and the area development programs. This unit is also responsible for supervising the Commission's technical assistance, regional research and analysis programs. The Program Operations unit is responsible for the review, analysis and processing of all project proposals submitted by the states for funding, for the provision of technical services to the states and the local development districts and for program monitoring and evaluation.

The professional and support personnel assigned here make this the largest operating unit within the Commission. Its major responsibility is to provide expeditious handling of project funding requests, including the provision of technical assistance to state and local applicants.

Program Support

Supporting services for the planning and operating elements are provided by two units: Office of Chief Counsel, and the Office of Finance and Administration.

The Office of Chief Counsel provides legal review of projects and proposals and prepares all contracts. Upon request, the office also counsels the Federal Co-Chairman and individual state members on legal matters pertaining to their activities.

The Office of Finance and Administration performs all personnel, financial, accounting and auditing functions for the Commission's program and administrative operations. This unit further provides for the development of management and operating data relating to Commission programs and maintains central data files for the Commission. Procurement, supply, clerical and other support services are also the responsibility of this division.

Relationship of Administrative to Program Costs

The Appalachian Regional Development Program is unique in that within it are conducted a number of diverse programs involving several Federal agencies and bureaus. In conducting these programs, the agencies perform varying administrative functions for which they are reimbursed from the program appropriation.

The costs range from minimal amounts in the supplemental grant type program where for the most part the various agencies perform no new function and process and disburse the ARC grant as an adjunct to their basic grant, to the significant costs in programs where Commission-financed projects constituted the bulk of work done. The current Federal administrative and other staff costs in 1990 of $5,148 thousand are equal to 3.04 percent of the total program costs. The thirteen State members will also contribute $2,208 thousand toward the Commission's expenses in 1990. Even with these costs, the percentage of administrative cost of total Federal appropriations is only 4.55 percent.

Program for The Appalachian Regional Commission Fiscal Year 1991

NEW YORK
PENNSYLVANIA
OHIO
MARYLAND
WEST VIRGINIA
KENTUCKY
VIRGINIA
N. C.
TENN.
S.C.
MISS.
ALABAMA
GEORGIA

By The Appalachian Governors

Submitted by the Appalachian Governors to the Appropriation Committees of the
U.S. House of Representatives and the U.S. Senate, February 1990,
as a Supplement to the President's Budget

APPALACHIAN REGIONAL COMMISSION

Budget Estimates, Fiscal Year 1991

As Submitted by
the
APPALACHIAN GOVERNORS

(Supplementing the Administration's Budget Request)

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February 1990

APPALACHIAN REGIONAL COMMISSION

BUDGET REQUESTS AND APPROPRIATIONS

(thousands of dollars)

Appropriation by Activity	1991 Admin. Budget	1991 Governors' Budget
I. Appalachian Regional Development Program:		
A. Area Development	$ 12,516	$ 33,300
B. LDD Support and Technical Assistance	4,200	4,200
Subtotal, Non-Highway	$ 16,716	$ 37,500
C. Highways	30,000	144,000
Total Appropriation	$ 46,716	$181,500
II. Salaries and Expenses:		
A. Federal Co-Chairman and Inspector General	$ 1,002	$ 1,002
B. Federal Share of Commission Expense	2,282	2,282
Total Appropriation	3,284	3,284
GRAND TOTAL	$ 50,000	$184,784

1991 BUDGET ESTIMATES - APPALACHIAN GOVERNORS

GENERAL STATEMENT AND SUMMARY

Background for Budget Request

The Appalachian Governors are requesting consideration by the Congress of an appropriation in FY 1991 of approximately $185 million for the Appalachian Regional Commission and its programs. This document details spending plans for that level of appropriation as compared with an Administration budget request of $50 million.

The Appalachian Governors are heartened that the new Administration proposes a continuation of the Appalachian program as has been advocated by the Congress and the Governors for the last eight years. While they commend the Federal Co-Chairman for her efforts in that direction, they believe, however, that the Administration's request of only $50 million is completely inadequate for the Region's needs even in times of general budgetary restraint. Accordingly, they are submitting for the consideration of the Appropriation Committees and the full Congress a request for an appropriation of $184,784,000 for the operation of the program in FY 1991.

The Governors recognize the current budgetary constraints within which the Congress must operate. Furthermore, they are cognizant of the fact that during the 100th Congress the U.S. House of Representatives passed by an overwhelming margin HR-2686, which would have authorized an annual funding level of over $162 million for the ARC for three years. They also note that the House Public Works and Transportation Committee, during the first session of this Congress, has reported out legislation to continue the Appalachian program for a period of three years at an annual level of $185 million. Legislation to extend the program at that level was introduced in the Senate, as well. The Governors believe that fairness and a proper respect for the judgment of its many supporters in the Congress require that this budget document set forth a plan for utilizing that level of funding, namely, an appropriation of $184,784 thousand. (The difference of $216 thousand reflects a slight decrease in anticipated administrative costs.)

The Governors continue to believe that the Commission could effectively utilize an appropriation of up to $320 million to address the needs of the Region. This is consistent with previous assessments of regional needs by the Governors and with the Governors' budget requests of the last several years. However, in recognition of current fiscal constraints and political realities, this budget document departs from previous practice and does not detail proposed program activities at this higher level. Instead, this budget document focuses on the program changes which would result at an appropriation of $185 million rather than the Administration's request of $50 million.

The Governors note with deep appreciation that while the Act authorizing the Appalachian Regional Commission and its programs was scheduled to expire on October 1, 1982, the House of Representatives has on three occasions since then passed legislation by substantial majorities extending the program and authorizing appropriations. Such actions were taken on July 17, 1983; September 4, 1985; and August 6, 1987. The Governors' budget request for 1991 is consistent with authorizations which would be provided under HR-2015 of the 101st Congress. This bill was reported to the House on December 1, 1989 by the Committee on Public Works and Transportation.

The Committee, in reporting the bill, noted that it was substantially the same as HR-2686 which passed the House in the 100th Congress by the margin of 330 to 89. The Committee noted that although the Senate had not acted on reauthorization legislation it had supported continued funds for ARC and EDA since September 1982.

The Committee Report (101-388, Part 1) notes that evaluation of the existing ARC (and EDA) programs have shown them to be highly successful investments by the Federal government in regional and subregional development projects. These projects have addressed many of the problems facing distressed communities and industries and have served a national economic and social purpose. The Committee states its confidence that the programs will continue to be as valuable in the future as they have been in the past. They note that "the work of the Commission is bearing fruit but the job is a long way from being completed. The Region remains among the most economically distressed areas of the country."

The Committee recognizes the continuing need to reduce the Federal budget deficit and to contain Federal spending. They note, however, that the authorization level in HR-2015 is considerably lower than pre-1982 levels, and that the Federal investment is to be matched by local communities and is intended to increase leveraging of other public and private resources. The Committee is "convinced that the nation, as a whole, benefits when the Federal monies invested in development assistance in economically distressed areas fosters business growth and expansion, puts people to work and results in tax revenues to local, state and Federal treasures."

Regional Economic Highlights

There is great diversity within Appalachia, but the parts of the Region share one dominating economic characteristic, i.e., events that hurt the national economy impact the Region with greater force than the national average and the Region recovers more slowly from national economic problems. Even when parts of the Region are doing relatively well, they still lag the nation in such fundamental considerations as per capita income. At the same time, other parts of the Region experience a continuation of their long-standing disadvantage. Over time, the proportion of the regional population that lives where economic conditions are worst has been declining, and the people who remain lack the resources to become full beneficiaries of the opportunities that exist elsewhere in and out of the Region.

General Trends

Appalachia gained significantly between 1970 and 1980 relative to the nation as a whole. Population increases kept up with the national 11 percent growth rate. The Region benefitted from a national trend of migration into nonmetropolitan areas. The Appalachian population in poverty declined from over 18 percent at the start of the decade to 14 percent in 1980.

The effects of the recession peaked in Appalachia during January of 1983 with regional average unemployment of 16 percent, compared with 11.4 percent nationwide. Per capita income for the Region edged closest to the U.S. norm in 1976 at 83.5 percent of the national average. Since then, however, regional per capita income declined steadily relative to the rest of the nation and stood at 79.8 percent of the U.S. average in 1986.

Restructuring of the Regional Economy

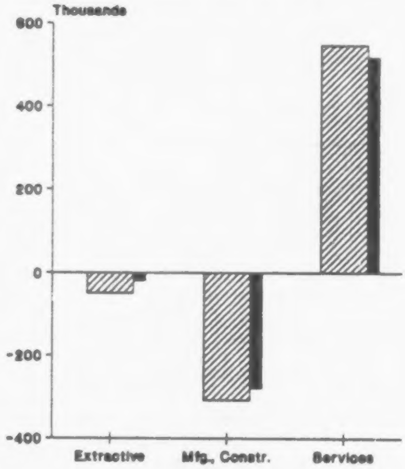
Traditionally, Appalachia has relied more heavily than the rest of the country on manufacturing and mining industries. In recent years, these sectors have struggled nationally as a result of global competition and the impact of new technologies. Appalachia has therefore experienced more painful adjustments to job losses resulting from industrial restructuring.

In 1980, some 38 percent of Appalachian jobs were in the production of manufactured goods, compared with 28 percent nationally. By 1986, manufacturing employment fell in the United States as a whole to 23 percent, and even more sharply to 31 percent in the Region. Losses were recorded in almost all specific manufacturing sectors--in primary metals, leather, stone and glass, tobacco, textile, apparel, fabricated metals, electrical and non-electrical machinery, transportation equipment and instruments. Overall, manufacturing employment in the first six years of this decade was down 15 percent in Appalachia. Declines in manufacturing have been steeper in Appalachia than in the nation as a whole, and increases in service sector employment, while substantial, have lagged the U.S. rate of growth.

West Virginia's recent experience illustrates the restructuring of the Region's economy. The state's economy was adversely affected by the 1982-84 recession, by the subsequent decline in the manufacturing sector nationally and the impact of increased imports on the U.S. economy. West Virginia lost employment in primary metals, fabricated metals, glass, chemicals and construction during the 1980s. In addition, the state lost employment in the coal mining sector. From 1980 to 1988, 36 of its 55 counties lost employment.

Employment. Changes in traditional sectors illustrate important pressures in the Appalachian economy. Mining, which has achieved consistent and substantial productivity gains, remains economically important in some areas but accounts for fewer Appalachian jobs over time. Some of the most distressed counties in Appalachia rely on coal for a principal portion of their economic viability. In this decade, regional coal output has been roughly stable but two other factors are of concern. First, the regional share of national output fell from 53.3 percent in 1980 to 47.1 percent in 1988. The only Appalachian area with significant growth in its quantity of output was West Virginia. Secondly, employment in coal in Appalachia has dropped markedly between 1980 and 1988. At the start of the decade, regional coal employment was 170,700. In 1988, it was 101,100. In other words, Appalachia produced almost the same quantity of coal but with increased technology employment dropped 40 percent.

Employment Change by Sector
Appalachia, 1980-86



Textile and apparel manufacturing, which are also relatively concentrated in different areas of the Region, lost about 60,000 jobs from 1980-86.

Primary and fabricated metals lost 144,000 jobs between 1980 and 1986. During the same period, chemicals lost 23,000 jobs.

Service sector employment, defined generally to include trade, finance and services, increased by over 18 percent or 547,000 in the Region between 1980 and 1986. The Region made significant gains in finance, employment in agricultural services, printing and publishing, air transportation, wholesale and retail trade, insurance and real estate, business services, personal services, health services, education services and membership organizations.

Unemployment. Average unemployment in 1988 in the Appalachian Region was 620,000, and the unemployment rate was 6.5 percent. Nationally, average unemployment was 6.3 million, with an unemployment rate of 5.4 percent.

While Appalachia as a whole improved significantly in terms of reduction of its overall unemployment rate since early in the decade, there still were 297 counties in the Region (out of a total of 397 counties) with unemployment rates more than the national average in 1988, and 98 counties with unemployment rates more than twice the national average.

Income. In 1986 per capita income was 79.8 percent of the national average, compared with 82.6 percent in 1980. In general, the more rural the county, the lower its percent of the national average. In the most urbanized counties, income is within 10 percent of the national average.

Population.[4] In 1988, the Region was home to 20.8 million people, about 45 percent of whom lived in nonmetropolitan areas. From 1980 to 1988, the U.S. population grew by 8.5 percent, but Appalachia grew by only 2.6 percent. This reflects the pull on population of opportunities outside the Region which led 120,000 to outmigrate. The vast majority (100,000) of these outmigrants moved from nonmetropolitan counties. Five state parts of the Region actually lost population - Maryland, New York, Pennsylvania, Virginia and West Virginia. Above average population growth has occurred in only the few areas of the Region where there has been sustained economic growth.

Economic Distress. Of the 299 nonmetropolitan counties in Appalachia, 42 percent are economically weak. Ninety of the weak counties are severely distressed. In the rest of the United States, only 19 percent of the rural counties are economically weak. Almost 11 percent of rural counties outside Appalachia have strong economies, but that can be said of only 1.7 percent of Appalachian rural counties. Appalachia's distressed counties have higher dropout rates, higher illiteracy rates, higher infant mortality rates and a greater shortage of health professionals.

Federal Procurement. Federal procurement provides a substantial boost to parts of the nation but not to most of Appalachia. Very few of the things the Federal government buys come from Appalachia. Although it has slightly more than 8 percent of the U.S. population, only 0.4 percent of Federal purchases are made in the entire Region. This is about equal to the share of Federal purchases made in Iowa. In contrast, California receives orders for almost 17 percent of these purchases; Massachusetts, 4.5 percent.

Assessment

The Appalachian Region has experienced significant changes since the start of the program for its development. It is better integrated into the national economy, its employment is somewhat less dependent on traditional declining industries, and its income, health and education status have improved. Focusing public and private resources on crucial causes of disadvantage works--but it works slowly. The magnified regional impact of national economic problems complicated and delayed by half a decade the pace of regional progress. Some regional goals have been met but data and experience indicate that further progress will be accelerated only by continued special attention to Appalachia's deficits in transportation, education, infrastructure and business development.

Program Operation

To guide its program, the Commission has adopted the following principles for its nonhighway programs:

- The Commission will continue its program of special assistance to the Region's distressed counties.
- The Commission recognizes that some of the Region's counties are closing the gap with the rest of the United States and that these counties are thus better able to become a focal point for investments that will have regional benefits. In these counties, the Commission will give priority to both regional program initiatives and projects serving special development opportunities.
- The Commission wishes to encourage investment in strategic initiatives that will improve the economic competitiveness of both the individual states and of the Region as a whole. An enhanced level of Commission support will be made available to these Regional Program Initiatives.

- The Commission will make allocations of appropriated funds among the 13 states for each of the three major programs: Highways, Area Development, and Local Development Districts. In 1990 the funds available for the area development program were separately allocated for the distressed counties subprogram and for all other economic and human resource development needs.

Within these allocations, each Governor will submit specific projects, generally developed locally in cooperation with the multi-county local development districts, for approval. The projects are first included in the annual state development plans and investment programs, which must be approved at a Governor Quorum Meeting of the Commission. The Federal Co-Chairman represents the national interest in the Commission's deliberations and decisions. By blending in this manner the states' concerns and priorities with national policy, the Commission makes the joint decisions and determinations which constitute the regional development programs.

To further reinforce the principles described above, the Commission has adopted the following percent grant limitations on individual projects, which apply in addition to the applicable statutory requirements. For the most distressed counties program in the Region as it is being carried out in 1990, ARC participation can cover 80 percent of project costs. For traditional projects in "economically competitive" counties ARC participation is limited to 30 percent of project cost. The majority of the Region's counties are limited to 50-percent funding, except for Regional Program Initiative projects. To encourage participation in the initiatives, any of the Region's counties can receive up to 80 percent of cost for start-up and first-year implementation of qualifying projects.

From its inception this unique partnership has been characterized by mutual respect and bi-partisanship among the members and a recognition that each member has a vital role to play in insuring the integrity of the process. Thus, the Commission has had the flexibility to respond quickly and effectively to a wide variety of economic development issues. While much remains to be done, by any reasonable and objective measure the ARC process has been a key factor in the enhanced economic growth and improved quality of life throughout the Region.

Summary of Budget Request

The Governors' Budget request is for $184,784 thousand for funding all programs of the Appalachian Regional Commission and for the administrative expenses required to administer the programs. This request includes $144 million for the Appalachian Highway Program, and $33.3 million for the Area Development Program of assistance to local communities for economic development and human development. The Governors' request of $144 million for highway compares with $30 million requested in the Administration's budget, while the $33.3 million requested for Area Development compares with slightly over $12.5 million requested by the Administration. It should be noted that in order to be consistent with the House Authorization Bill, HR-2015, the $33.3 million requested for Area Development is actually $2.2 million less than the $35.5 million appropriated for 1990. Correspondingly, the Highway budget request of $144 million is slightly more than $39 million over the 1990 appropriation of nearly $105 million.

The Governors have no differences with the Administration over the request for $4.2 million of assistance to Local Development Districts and Technical Assistance. This is the same amount appropriated for 1990, before Gramm-Rudman-Hollings reductions.

Finally, the Governors recommend without change, the Administration's proposed $3,284 thousand Salaries and Expenses item which provides the 50-percent Federal share of Commission administrative expenses and the expenses of the Federal Co-Chairman's staff. The following table summarizes the Governors' 1991 budget as compared with the enacted appropriations for 1990 and the Administration's request for 1991.

1991 BUDGET REQUEST BY SUBPROGRAM

(thousands of dollars)

	1990 Approp.*	1991 Budget		Governors' Change	
		Admin. Request	Govs'. Request	From 1990	From Admin.
I. Appalachian Regional Development Program					
A. Highway Program:					
1. Development Highways	$100,690	$25,700	$139,500	$+38,810	$113,800
2. Access Road	3,000	3,000	3,000	—	—
3. Administration and Planning	1,300	1,300	1,500	+200	+200
Subtotal, Highways	$104,990	$30,000	$144,000	$+39,010	$114,000
B. Non-Highway Programs:					
1. Area Development:					
(a) Community Dev.	$ 28,815	$ 6,100	$ 26,600	$ -2,215	$ +20,500
(b) Human Dev.	6,100	6,100	6,100	—	—
2. LDD Support	3,200	3,200	3,200	—	—
3. Technical Assistance	985	1,000	1,000	+15	—
4. Federal Agency Admin.	600	316	600	—	+284
Subtotal, Non-Highway Programs	39,700	16,716	37,500	-2,200	+20,784
Subtotal, Dev. Programs	$144,690	$46,716	$181,500	$+36,884	$ 134,784
II. Salaries and Expenses					
A. Federal Share of Admin. Expense	$ 2,208	$ 2,282	$ 2,282	$ +74	—
B. Federal Co-Chairman's Office and Office of Inspector General	1,002	1,002	1,002	—	—
Subtotal, Salaries & Expenses	3,210	3,284	3,284	+74	—
GRAND TOTAL	$147,900	$50,000	$184,784	$+36,884	$+134,784

*After Gramm-Rudman-Hollings reduction of $2,100 thousand.

PROPOSED APPROPRIATION LANGUAGE

APPALACHIAN REGIONAL COMMISSION

For expenses necessary to carry out the programs authorized by the Appalachian Regional Development Act of 1965, as amended, notwithstanding Section 405 of said Act, and for necessary expenses for the Federal Co-Chairman and the alternate on the Appalachian Regional Commission and for payment of the Federal share of the administrative expenses of the Commission, including services as authorized by Section 3109 of Title 5, United States Code, and hire of passenger vehicles, to remain available until expended, [$150,000,000]. $184,784,000

Explanation:

(Within authorizing legislation as reported by House Public Works and Transportation Committee.)

APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM

	1989 Actual	1990 Enacted	1991 Requested	Increase or Decrease
Appropriation	$69,169	$104,990	$144,000	$+39,010
Obligation	$71,562	$108,286	$144,000	$+35,714

The Governors propose a budget for 1991 of $144 million, an increase of $39,010 thousand over the amount of $104,990 appropriated for FY 1990. The $144 million requested also compares with the $30 million requested for the FY 1991 highway program by the Administration. Comparative details for the Governors' budget request and both the 1990 appropriation and the Administration's budget are shown below:

		1991 Budget		Differences	
	1990 Enacted	Admin. Request	Gov.'s Request	From 1990 Approp.	From Admin. Budget
Appropriation	$104,990	$ 30,000	$144,000	$+39,010	$+114,000
By Program:					
Development Highways	100,599	25,700	139,500	+38,901	+113,800
Access Roads	6,367	3,000	3,000	-3,367	---
Administration	1,319	1,300	1,500	+181	+200
Subtotal, Obligation	$108,286	$ 30,000	$144,000	$ 35,714	$+114,000
Less Carry-over	-3,296	---	---	+3,296	---
Appropriation	$104,990	$ 30,000	$144,000	$ 39,010	$+114,000

The increased amount will largely be used for increased State-by-State allocations for the Development Highway or Corridor System and a $200 thousand increase in costs to administer the program which is largely coordinated by the Federal Highway Administration.

Highway programs generally measure their accomplishments in terms of miles completed or placed under construction. In these terms, the program has placed under construction or partial construction 2,096 of the 3,025 mile development corridor system, with an anticipated 2,120 miles placed under construction through FY 1990. As with many other programs, the number of miles constructed for a given number of dollars has decreased sharply since the program was initially authorized due to inflation and revised standards. Miles constructed, however, do not really measure the impact of the development highway system as its increasing completion operates to open the region for development and for the improvement of the condition of its inhabitants.

The record now makes clear the basic importance of the highways to the economic development of the Region. Even though the full system is far from complete, the Appalachian Development Highway System impacts are already considerable:

-- Industries and businesses have grown along the highways;

-- Enterprises not directly along the highways were strengthened by the dramatic opening up of the Region by the highway system;

-- The Appalachian Development Highway System is a vital link in moving Appalachian coal to domestic and foreign markets; and

-- The costs and difficulty of extending health, education and other services in the Region were reduced by the highways.

During 1981 ARC surveyed the 13 Appalachian States and the 68 local development districts in Appalachia to assess the impact of the highway system. The surveys provided the most accurate count ever taken of the industries located on or near the Appalachian Development Highway System corridors. The surveys showed that since 1965, when the corridor system was first announced, 182,700 jobs had been created in 801 manufacturing plants with 50 or more employees within 30 minutes of the corridors. Added to this is an estimated 32,300 jobs in smaller plants for a total of 215,000 jobs. Standard projections of one service job created for each manufacturing job suggest that 215,000 jobs in retail trade, commercial establishments and various services have been opened up along the corridors, for a total of over 430,000 jobs. A 1987 survey, using a different approach showed that between 1980 and 1986, 560,000 jobs were created in the Appalachian counties with a major highway compared with 134,000 jobs created in counties without a major highway. The number of expanding firms was also greatest (9,800) in counties with a major highway compared with the number (3,000) in counties without a major highway.

The table below compares the program data for the various progress phases of highway construction on a cumulative miles basis.

		1991 Budget		Differences	
	1990 Enacted	Admin. Request	Gov.'s Request	From 1990 Approp.	From Admin. Budget
Cumulative Program Data (Miles):					
Amount Completed	2,020	2,050	2,050	+30	---
Construction Underway	2,120	2,126	2,150	+30	+24
ROW in process	2,260	2,260	2,280	+20	+20
Design Begun	2,650	2,650	2,670	+20	+20
Total eligible for construction	3,025	3,025	3,025	---	---
Total Authorized By Congress	3,025	3,025	3,025	---	---

The Administration's 1991 budget request of $30 million would provide on the average about $2 million per state which at current prices is far less than one mile of construction and would mean virtually no progress on construction of this vitally needed system.

The Governors therefore are proposing $144 million for highways which would provide an average of nearly $11 million or more than one mile per state. While this still falls far short of the need it would provide states with sufficient funds to contract for a reasonable segment of construction in 1991. The amount requested is at the level that would be authorized within the bill reported by the House Public Works and Transportation Committee at the first session of this Congress.

The Governors' request assumes the same $3 million included in the Administration's budget which is needed to finance access road projects currently approved but unobligated. It would increase from $1.3 to $1.5 million the estimate for costs to administer the expanded highway program, largely in FHWA district offices. Table I, following, shows on a State-by-State basis the cumulative dollar amounts to date and under the Administration's and Governors' budget proposals.

TABLE I
APPALACHIAN HIGHWAY PROGRAM OBLIGATION NEEDS
State by State Summary
(thousands of dollars)

Development Highways	Obligated thru 1989	Est. State Capabilities thru 1990	Estimated Oblig. thru 1990	1991 Estimate	
				Admin. Budget	Governors' Request
Alabama	$146,704	$167,634	$163,585	$165,894	$178,629
Georgia	98,824	150,948	101,855	103,296	107,587
Kentucky	516,781	587,961	520,681	523,134	537,268
Maryland	134,823	179,587	137,605	139,059	143,474
Mississippi	99,792	115,359	115,010	116,374	119,913
New York	281,401	308,546	284,955	286,510	291,904
North Carolina	155,450	160,151	159,775	161,497	168,518
Ohio	125,836	130,609	128,748	130,233	134,956
Pennsylvania	527,710	546,604	536,250	540,227	560,526
South Carolina	15,324	16,219	16,219	17,250	17,558
Tennessee	342,061	397,809	348,457	350,702	362,810
Virginia	136,029	140,595	138,948	140,435	145,169
West Virginia	680,772	710,978	710,511	713,588	733,787
Adjustments and Slippage	+364	---	-129	-129	-129
Subtotal	$3,261,871	$3,613,000	$3,362,470	$3,388,170	$3,501,970
Access Roads	203,633	210,000	210,000	213,000	213,000
FHWA-Admin.-Misc.	30,410	31,600	31,729	33,029	33,229
TOTAL	$3,495,914	$3,854,600	$3,604,199	$3,634,199	$3,748,199
Appropriations Available	$3,499,209	$3,604,199	$3,604,199	$3,634,199	$3,748,199
Amount Prefinanced	270,457	260,000	260,000	270,000	260,000
Unobligated Balances	3,296	---	---	---	---

*Additional Prefinanced amounts.

Alabama	$ 8,476
Georgia	52,124
Kentucky	70,596
Maryland	45,529
Mississippi	7,211
New York	21,943
Ohio	4,773
Tennessee	55,239
Virginia	4,566
TOTAL	$270,457

AREA DEVELOPMENT PROGRAM

	(thousands of dollars)			
	1989 Actual	1990 Enacted	1991 Requested	Increase or Decrease
Appropriation	$34,731	$35,515	$33,300	$-2,215
Obligation	$61,341	$42,552	$33,300	$-9,252

The Governors request $33.3 million for the Area Development programs for 1991 which while an increase of $20,784 thousand over the Administration's request, is nearly $2,215 thousand under the 1990 Congressional appropriation in order to be consistent with HR-2015. A comparison of the Governors' request with both the 1990 appropriation and the Administration's budget are as follows:

	(thousands of dollars)				
		1991 Request		Governors' Changes	
	1990 Approp.	By Admin.	By Gov's.	From 1990 Approp.	From Admin. Budget
Program, by type					
Community Dev.	$30,888	$ 6,100	$ 26,600	$-4,288	$+20,500
Human Resources	6,600	6,100	6,100	-500	---
Administration	600	316	600	---	+284
Subtotal approvals	38,088	12,516	33,300	-4,788	+20,784
Projects in transit, Net	+4,464	---	---	-4,464	---
Net Obligations	$42,552	$12,516	$ 33,300	$-9,252	$+20,784
Financing					
Obligations	$42,552	$12,516	$ 33,300	$-9,252	$+20,784
From prior year balances	-7,037	---	---	+7,037	---
Appropriation	$35,515	$12,516	$ 33,300	$-2,215	$+20,784

Budget for 1991

The Governors' request for 1991 would provide $33.3 million for the Area Development programs, an increase of nearly $21 million over the Administration's 1991 request, but an actual decrease of $2.2 million from the actual 1990 Congressional appropriation.

The Area Development Program funds are utilized in two major program areas, Community Development, including economic and business development, and Human Resource Development, particularly rural education and health care. The Governors' 1991 budget includes $6.1 million for Human Resource Development, the same amount included in the Administration's budget and comparable to amounts utilized by the states in past years. The Governors recommend $26.6 million for the Community Development program, $20.5 million more than the Administration's request and about $4 million less than the amount estimated for 1990.

The Governors' recommend provision of $600 thousand for costs incurred by other agencies in helping administer the program, the same amount appropriated for 1990.

The table following compares, by type of project, the Governors' 1991 program with Administration's requests.

PROJECTS APPROVED BY SUBPROGRAMS

	(thousands of dollars)			
	1989 Actual	1990 Enacted	1991 Admin. Request	1991 Gov's. Program
1. Community Development:				
A. Infrastructure/Environment:				
Waste Systems	$12,025	$ 7,000	$ ---	$ 6,000
Water and Waste Disposal	16,646	5,000	---	4,200
Industrial Development	7,520	7,000	---	5,000
Community Improvement	1,864	2,000	---	2,000
Housing	350	---	---	---
Subtotal	$38,405	$21,000	$ 2,300	$17,200
B. Business Development:				
Enterprise Development	$ 5,139	$ 3,688	$ ---	$ 3,400
Revolving Loan Fund	3,168	2,000	---	2,000
Technology Transfer	1,704	800	---	600
Subtotal	$10,011	$ 6,488	$ 2,200	$ 6,000
C. Local Government Assistance	2,935	3,400	1,600	3,400
Total, Community Development	$51,351	$30,888	$ 6,100	$26,600
2. Human Development:				
A. Education and Job Training:				
Vocational and Training	$ 2,313			
Adult Literacy	1,299			
Dropout Prevention	1,444			
Education Improvement	1,051			
Subtotal	$ 6,107	$ 5,600	$ 4,300	$ 4,300
B. Other Human Development:	1,279	1,000	800	800
C. Youth Leadership	---	---	1,000	1,000
Total, Human Development	$ 7,386	$ 6,600	$ 6,100	$ 6,100
Total Project Approvals	$58,737	$37,488	$12,200	$32,700
3. Administration	701	600	316	600
GRAND TOTAL	$59,438	$38,088	$12,516	$33,300

LOCAL DEVELOPMENT DISTRICTS AND TECHNICAL ASSISTANCE PROGRAMS

(thousands of dollars)

	1989 Actual	1990 Enacted	1991 Requested	Increase or Decrease
Appropriation	$ 4,200	$ 4,185	$ 4,200	$ +15
Obligation	$ 3,888	$ 5,277	$ 4,200	$ -1,077

The Governors request $4.2 million for this program in 1991, the same amount included in the Administration's budget. It is also the same amount appropriated for FY 1990 before the Gramm-Rudman-Hollings reductions.

The following table compares, by the two subprograms, the Governors' request with the 1990 appropriation and the Administration's 1991 budget.

		1991 Request		Difference	
	1990 Approp.	Admin. Budget	Gov.'s Request	Over 1991	Over Admin. Budget
1. Local Development Districts	$3,200	$3,200	$3,200	---	---
2. Commission Technical Assistance	985	1,000	1,000	+15	---
TOTAL	$4,185	$4,200	$4,200	+15	---

The goals and objectives of the local development districts are in general harmony with overall state goals and objectives. Basically, districts can actively pursue the following roles in development:

- They can perform areawide planning, program development and program coordination functions. In this capacity they serve as the focal point for relating local and regional needs, objectives and priorities to statewide program planning and development.
- They can assist local units of government in the provision of services. This is especially true and important to the poorer, more rural and isolated areas of the Region where there are fewer resources available and where communities experience a form of isolation.
- They promote and can pursue public/private partnerships at the local level as the basis for strengthening the local economy. In this role they emphasize business and enterprise development programs and programs dealing with loan packaging.

Some districts involve themselves with all three objectives; others limit their activity to one or two of these objectives. In any event, their efforts increase the impact of Appalachian funds toward key investments aimed at retaining and expanding employment. The districts also, by their involvement and activities, strengthen state-local linkages and ensure a strong local input in the developmental process. The Commission will continue to evaluate and refine an expanded role for the districts in economic development.

The local development districts throughout the Appalachian Region have readily accepted their role and responsibilities in the past and appear ready to accept their responsibilities in the future. From 1965 to 1975, official recognition of districts was limited to general provisions in the statute authorizing financial support and providing for certification of districts. The 1975 amendments provided clear statements of the districts' role and called for encouraging the development of areawide action programs. This allowed the districts to have responsibility to:

- Serve as a means of communicating local and areawide policies and priorities for Appalachian development to the state.
- Facilitate joint projects or combined service delivery systems to provide services as efficiently and economically as possible.
- Provide public finance, administrative and planning services assistance as requested by small communities and rural areas that cannot afford to support these services themselves.
- Provide technical assistance in major program areas including housing, water and wastewater management, and industry-related child care.

Since 1980, districts have become more and more involved in business and enterprise development programs. Their activities include packaging loans, development of export and entrepreneurship opportunities, technical assistance to small businesses, procurement and technology transfer programs. They are becoming a very important player in rural development initiatives.

The districts must be kept viable to continue their role in economic development. To this end, it is felt that the current annualized rate of $3.2 million is the minimum necessary and the amount requested.

SALARIES AND EXPENSES

(thousands of dollars)

	1989 Actual	1990 Enacted	1991 Requested	Increase or Decrease
Appropriation	$ 2,600	$ 3,210	$ 3,284	$ +74
Obligation	$ 2,588	$ 3,229	$ 3,284	$ +55

The Governors agree with the Federal Co-Chairman as to the budget request for $3,284 thousand, an increase of $74 thousand over the 1990 appropriation. The increased amount is solely for the 50 percent Federal contribution to the administrative expense budget (the Appalachian Regional Commission non-Federal staff administering the program). The Governors have already voted to match, with state funds, this proposed Federal contribution of $2,282 thousand, which with the use of prior year balances will provide a total Commission administrative expense budget for 1991 totalling $4,886 thousand. The increased amount over 1990 of $200 thousand will support a Commission staff of 55 persons as compared with 115 positions in 1980.

		1991		Increase	
	1990 Approp.	Admin. Budget	Gov.'s Request	Over 1990 Approp.	Over Admin. Budget
1. Federal Co-Chairman:					
A. Immediate Staff	$652	$652	$652	---	---
B. Inspector General	350	350	350	---	---
Subtotal, Federal Co-Chairman	1,002	1,002	1,002	---	---
2. Commission Administrative Expense (50% Federal contribution)	2,208	2,282	2,282	$+74	---
TOTAL	$3,210	$3,284	$3,284	$+74	---

TOTAL OPERATING BUDGET

	(thousands of dollars)			
			1991 Estimate	
	1989 Actual	1990 Enacted	Admin. Request	Governors' Request
1. Appropriations:				
Appalachian Regional Development Programs	$108,100	$144,690	$46,716	$181,500
Salaries and Expenses	2,600	3,210	3,284	3,284
Total Appropriation	$110,700	$147,900	$50,000	$184,784
2. Other Funding Sources:				
States Contribution to Commission Admin. Expense	$ 2,050	$ 2,208	$ 2,282	$ 2,282
States' Washington Office	282	350	375	375
Repayment of Housing Loans	---	2	---	---
Recovery of Prior Year Obligations	4,819	---	---	---
Total, Other Funding	$ 7,151	$ 2,560	$ 2,657	$ 2,657
3. Use of Prior Year Funds:				
A. Unobligated Balances Brought Forward:				
Appropriations:				
Approved, not obligated	$ 6,191	$ 5,489	$ ---	$ ---
Other Balances	29,525	6,007	---	---
Other Funds	772	701	431	431
Subtotals	$ 36,488	$ 12,197	$ 431	$ 431
B. Unobligated Balances Carried Forwarded:				
Appropriations:				
Approved, not obligated	$ -5,489	$ ---	$ ---	$ ---
Other Balances	-6,007	---	---	---
Other Funds	-701	-431	-109	-109
Subtotals	$-12,197	$ -431	$ -109	$ -109
C. Unobligated Balances Used	$+24,291	$+11,766	$ +322	$ +322
4. Total Obligations, Gross	$142,142	$162,225	$52,979	$187,763

WEDNESDAY, FEBRUARY 28, 1990.

TENNESSEE VALLEY AUTHORITY

WITNESSES

MARVIN RUNYON, CHAIRMAN
C.H. DEAN, JR., DIRECTOR
JOHN B. WATERS, DIRECTOR

Mr. BEVILL. The committee will come to order.

Chairman Runyon, and Director Waters and Director Dean, we're pleased to have each of you here this morning.

Director Dean, this is your last appearance before this subcommittee as a Board member, and I want to express my appreciation to you for your nine years of service on the TVA Board of Directors.

You've really been through some turbulent times. We appreciate the work that you had to do grappling with problems involving the nuclear power program and the rising electric rates, while at the same time trying to fight to keep your appropriated programs alive.

I know that you feel a sense of accomplishment for what you've been able to do during those nine years of service in helping get the nuclear program back on the right track, preserving the appropriated programs, and tightening the power budget so rates could be stabilized.

I remember one of the budgets which proposed to close the fertilizer plant and to close everything. You've had to weather some real storms, and we appreciate the outstanding effort that you've put in.

Mr. DEAN. Mr. Chairman, I can't let that pass without thanking you. What success we've had, particularly in maintaining our appropriated budget, would have been absolutely impossible without your help.

Even when things were bad at TVA and we had to shut down a nuclear plant, you've never taken any cheap shots at us, and I appreciate it more than you'll ever know.

Mr. BEVILL. Well, you know, you've also made history with the TVA in that you're the first TVA power distributor to serve as a Chairman and a Director of the TVA. Not only that, but you also served as President of the Tennessee Valley Public Power Association, which represents 160 distributors of TVA power, and on the Board of the Directors of the American Public Power Association, and the Electric Power Research Institute.

We thank you for your service. You've made quite a contribution.

Mr. DEAN. Thank you, sir. As I said, we couldn't have done it without you.

Mr. BEVILL. Well, Chairman Runyon, we are pleased that you could be with us this morning. We're looking forward to hearing your testimony, so I'm going to recognize you at this time, and you may proceed as you wish.

OPENING STATEMENT—MR. RUNYON

Mr. RUNYON. Thank you, Mr. Chairman.

We're here today to present the Administration's budget request for the Tennessee Valley Authority for fiscal year 1991. A copy of the budget request has been submitted to you for the record. The Administration is asking for $91.3 million.

This morning we want to give you a brief overview of what we did last year and where we see TVA headed in the 1990s. TVA has made great progress in the last few years, and we see a bright future.

Last year, we met the second year of our three-year rate stability goal, which means a saving for every resident and business in the Tennessee Valley region. This year, we expect to meet the third year of our goal, and TVA's top managers have challenged themselves to extend our rate stability goal for at least a fourth year.

We've continued to make TVA more streamlined and competitive, and the people of the Tennessee Valley have benefitted from a 30 percent reduction in overhead costs in our appropriated programs.

Refinancing our long term debt last year will save TVA Power customers almost $150 million each year in interest payments.

Last Spring, our flood control staff prevented $4 million in potential flood damage from record rains. We achieved record power production in 1989 from our Sequoyah Nuclear Plant.

Our fossil plants continue to be among the most efficient and productive in the Nation. As we now enter a new decade, we see even more opportunities for TVA to renew its mission of helping to improve the quality of life for the people we serve.

In the 1990s, we're concentrating on five areas. First, providing environmental leadership; second, stimulating economic growth; third, maintaining a quality work force and work place at TVA; fourth, emphasizing service to customers and communities; and fifth, achieving excellence in our nuclear power operations.

Mr. Chairman, this is our agenda for the 1990s. Now let me provide some details about what we expect to achieve. First of all, we'll strive for environmental leadership. That means going beyond the mere compliance with laws and regulations. Leadership means helping to solve problems in innovative ways and demonstrating to others how environmental challenges can be met.

Last month, we changed the name of TVA's National Fertilizer Development Center to the National Fertilizer and Environmental Research Center.

This change in name really underscores the change in program that has taken place at the center. TVA will continue to take a leading role in working with farmers in developing and testing environmentally safe ways to improve soil fertility. But the contributions of TVA researchers already extend beyond agricultural applications. Symbolically, the name change reflects a broader concern for the environmental matters in every area of TVA's responsibility.

TVA has always been a National laboratory for a wide range of environmental concerns. Today, we're helping to solve a variety of air, water, land and waste management problems. For example, as one of our Nation's largest consumers of coal, TVA is a leader in developing and testing pollution control and clean coal technologies. We've cut our sulphur dioxide emissions in half and reduced particular emissions by 93 percent. All of our plants are in compliance, and the regulated emissions at most of the plants are well below the levels allowed.

The second area we're focusing on in the 1990s is stimulating economic growth. We're basing our business operations and planning on helping to encourage quality economic growth and create jobs.

Stabilizing power rates has already provided a boost to economic growth. Since we announced TVA's rate stability goal, more than 500 firms have made plans to locate or expand in the Tennessee Valley. That adds up to more than $6 billion in new investments and over 30,000 new jobs. We've also introduced rate incentives that are tied to the number of new jobs created.

Our third area of focus in the 1990s is maintaining a quality work force and work place at TVA. That means stabilizing our work force, expanding employee involvement and improving productivity.

We've already gone a long way toward achieving excellent efficiency and productivity at TVA, but we must do more. TVA must be recognized as an excellent place to work where employees are committed to their jobs, where their work is challenging, and the work environment is inviting.

We've already established new compensation policies that are helping us attract and retain highly qualified staff. We're implementing a new management philosophy, and we're working on long range strategies for labor relations and minority development. We're also considering a flexible benefits package, dependent care programs and fitness centers, among others. We're determined to make TVA the most competitive electric utility in North America and the most efficient and productive agency in Federal service, and we'll do it with the help of our highly committed employees.

Our fourth area of emphasis for the 1990s stresses service to our customers through a consumer philosophy that's practiced by all TVA employees. That means we won't take our customers, communities or other constituencies for granted. Last year, for example, we continued to improve our record of reliability in transmission service, providing power to our customers more than 99.99 percent of the time.

Even when service was interrupted, the average time out of service was only about 13 minutes. We achieved that level of reliability even though a series of tornadoes in north Alabama last November inflicted the second largest amount of damage ever on our transmission system.

During our disaster relief operations, I went to north Alabama to meet with State and local leaders, TVA power distributors and our emergency crews. Many of those crew members worked 36-hour shifts in snow and freezing rain. While they were restoring power to our customers, they were providing a working definition of customer service to all of us.

Finally, TVA's fifth area of focus in the 1990s is achieving excellence in nuclear power operations. That means operating TVA's plants in a safe, efficient and quality manner.

Earning the public's confidence is essential to our success in nuclear power. Our hydro and fossil plants continue to be among the top power plants in the Nation, and our goal is for TVA's nuclear plants to be among the top performers in the industry. Both reactors at our Sequoyah Nuclear Plant set performance records last year, and that reflects the quality of our recovery program. This year, we're working to return another reactor to service at Browns Ferry Nuclear Plant. We expect TVA's nuclear units to be as efficient and reliable as their competitors in the industry, and above all, we expect them to be safe.

Nuclear power also is making a valuable contribution to our clean air initiatives. If TVA had built coal fired plants instead of nuclear plants for additional capacity, our sulfur dioxide emissions would be about one million tons higher each year, or almost double current emissions.

Mr. Chairman, by focusing on the areas I've mentioned, TVA is helping the people of the Tennessee Valley and the Nation to meet the challenges of this new decade. In making those contributions, I'm confident that we'll reach our goal of being the most competitive electric utility in North America and the most efficient and productive agency in Federal service. We realize that these goals are ambitious, but we're convinced that they're realistic. With the support of Congress and the citizens we serve, we'll achieve them.

Mr. Chairman, we greatly appreciate the support that the members of this subcommittee and your colleagues have shown to TVA in the past, and we'll work hard to continue to merit your support. Your ongoing interest in our programs is a real expression of your concern for the needs of the people of the Tennessee Valley and the Nation. On behalf of TVA and all the people we serve, thank you very much.

[The prepared statement of Mr. Runyon appears at the end of the hearing record.]

Mr. BEVILL. All right. Mr. Dean?

OPENING STATEMENT—MR. DEAN

Mr. DEAN. Mr. Chairman, members of the subcommittee, as Chairman Bevill has already pointed out, today marks my last appearance before you. I've served on the Board of Directors at TVA for almost nine years, and my term expires this May. There have been 21 directors in TVA's history, and only seven of us have served out a full term. It's been a challenging nine years, at times stressful, at times exciting, if putting out fires is exciting, and it's always been fascinating.

During my tenure at TVA, I've gotten to know the members of this subcommittee, and I appreciate the complexities of your responsibility and the service you provide to TVA and the citizens of Tennessee Valley and the Nation.

Since most of the TVA budget comes from power revenues, it's sometimes easy to think that the small percentage that comes from appropriations is inconsequential. But it's our appropriated program that defines TVA's character as one of the best known and most successful resource development agencies in the world.

Let me briefly mention three examples to demonstrate where TVA has made a difference with its appropriated program. Each example in its own way is making an important contribution to the Nation's heritage.

As we look around us in the late 20th century, we see many societal values in chaos. Perhaps this is because we're no longer primarily an agricultural Nation.

We're losing our appreciation for traditional values as we lose touch with the natural world around us. For more than ten years, TVA's environmental education program has been setting up a network of university-based centers which are helping to restore the traditional values associated with the natural world. The network is reaching thousands of school children every year, and last year the Alliance for Environmental Education selected the program to be the model for a National network of environmental education centers. Another progressive example is the stewardship programs that this subcommittee reintroduced into our budget during the last two years. TVA's lands and facilities are part of our legacy to future generations. Thanks to you, we're making the badly needed repairs and improvements to the Federal properties entrusted to us. With the continuation of our stewardship programs, we will be able to pass on to the next generation a legacy of real and enduring value. Finally, I want to mention the bald eagle at the Land Between the Lakes. Over the years, TVA has helped return a variety of species to the wild. But of all these projects, one of the most exciting has been the restoration of bald eagles to the Land Between the Lakes. Forty-four eagles were raised in captivity and released during TVA's eight-year program. Many of them nested. This winter, our resident population is more than 150 birds, and one of the Kentucky nests was the first successful nest in the State known to produce offspring in four years.

The bald eagle, of course, is a symbol of our great Nation. To see the bald eagle once again soaring over the lakes and the fields of the Tennessee Valley gives us great hope for a brighter tomorrow for all of America.

Mr. Chairman, each of the appropriated programs I just mentioned exist because this subcommittee has taken a strong interest in them. TVA has made a difference to these programs, and because of your help, they're as much your legacy as ours. We're grateful for the support you've shown us over the years, and although this is my last appearance here, I will continue to follow the work of this committee with great interest. I wish each of you well in the years ahead.

[The prepared statement of Mr. Dean appears at the end of the hearing record.]

Mr. BEVILL. Very good. My good friend, and a man who has worked mighty hard with the TVA, John Waters, the Chair recognizes you.

OPENING STATEMENT—MR. WATERS

Mr. WATERS. Thank you very much, Mr. Chairman.

Last month, in his State of the Union Address, the President reminded us that one of the most important legacies we owe to future generations is the safekeeping of America's precious environment. At TVA, we take our environmental responsibility seriously. In fact, as Marvin has just explained, the environment has become one of our top priorities for the 1990s. Today, thanks to the generous support of this subcommittee, we have strong programs in land, air, and water resources.

One of our most critical concerns, and one that has become my personal priority as a TVA director, is finding ways to better manage the Tennessee River system for the maximum benefit of all our people. We're committed to making the Tennessee River and its tributaries the best managed river system in the world.

Mr. Chairman, please allow me to just quickly summarize some of the things we're doing to achieve that goal.

Over the last couple of years, we've been conducting the most comprehensive study in TVA's history of the way we operate the river system. We just released a draft of the study entitled Lake Improvement Plans, and we're currently holding public meetings and gathering written comments to help guide our final decision.

Under the TVA Act, navigation, flood control and power production were the primary purposes for our river system. But over the years, water quality and recreation have become increasingly important in the Valley. Today, aquaculture, water supply, aquatic habitat, irrigation, power plant cooling and other problems are new major concerns.

So we commissioned the study to see if new operating priorities were needed. The plan contains a number of alternative management proposals affecting water quality, lake levels and recreation. Even though the plan is still in draft, it has been broadly distributed, and I'm told is already altering the way other Federal and State agencies view water policy.

But if we expect the Tennessee River system to be the best managed in the world, we have to solve the problem of low dissolved oxygen and non-point source pollution once and for all. Already we've taken some important steps. We're testing several highly innovative techniques to put oxygen back in the waters below our dams. We also have several projects demonstrating how to contain potential non-point source pollution. These demonstration projects encourage others to try these techniques themselves.

Navigation raises another serious concern that we must face. Navigation is expanding on the Tennessee River due in large part to the opening of the Tennessee Tombigbee Waterway. Unfortunately, opportunities to move cargo in and out of east Tennessee are hampered by small locks on the three upstream dams. Barge delays are growing worse. We estimate that by the year 2000 the average tow will have to wait more than three days at Chattanooga just to get through Chickamauga Lock.

TVA is also monitoring water quality, studying the impact of air pollutants on our lakes, controlling aquatic weeds and insects, and offering flood control assistance.

These are just some of the activities we're undertaking to make the Tennessee River the best managed system in the world. The techniques we are developing can be applied to our region, to the Nation, and indeed to the world. Overall, TVA has done a good job of managing the Tennessee River for the past half-century.

We've learned a lot. We've shared what we've learned, and we're applying those lessons to the problems of today. TVA is a National laboratory. It is a yardstick for the Nation. We test new ideas, make them work, and pass the results on to others. By supporting our work, Mr. Chairman, you're not simply approving another item in the Federal budget.

You are continuing our investment in the search for a better way of life, not just for the Tennessee Valley, but for all of America. Thank you very much, sir.

[The prepared statement of Mr. Waters appears at the end of the hearing record.]

Mr. BEVILL. Very good. Chairman Whitten has a meeting to attend, so I'm going to yield to him at this time.

Mr. WHITTEN. Thank you, Mr. Chairman.

May I say for the record that Mr. Bevill and the members of this subcommittee deserve a world of credit for the work they have done over the years.

You know, our real wealth is our own country, and I think TVA is one of the prime examples of how working together on resolving regional problems with Federal programs since 1934 has caused our real wealth to increase 41 times. It's a matter of record. It's increased 36 times since 1940.

My experience with TVA goes back a long way. I participated in a debate years ago at Chattanooga, in place of Senator Gore, Sr., and I thought I won that because I showed the closer to the TVA rates private power rates were, the more money they made and the more their service increased because you went in for volume.

I was here and wrote the language in the 80th Congress when they demanded that you pay interest on what you had. But because you were owned by the Federal Government, it wasn't interest, it was dividends.

At that time, you had a water development, primarily, and we fixed it where you could pay a fourth each ten years, because the ups and downs the water made.

Now, though you've gotten to be much, much bigger, the need is still there, and the work is there, and you're still doing a great job. There are two or three things that I think I should point out.

NASA FACILITY AT YELLOW CREEK

The TVA enabled us to have a NASA facility at Yellow Creek today, because the TVA financed the Yellow Creek port. We were able to get that with some help on the Senate's side.

Because we had the port, and the Tenn-Tom it led to us being the best location for NASA for the Advanced Solid Rocket Motor. So all these things work together.

I am advised that the appraised value for the land had to go through the GSA that it has to be reappraised. I am concerned that it will now be appraised at a higher value because of this project, because with any project such as ASRM, the land value is bound to jump up. However, appraisals are supposed to reflect highest and best use, not what may be.

May I say that any delay that's caused because of the argument about taking from one pocket and putting in another, because TVA and NASA are both Federal Government agencies, any delay would be very expensive not only to the area, but to the Federal Government.

WE MUST PROTECT THE ENVIRONMENT

May I say again I'm glad to see that we are acknowledging the importance of the environment and those things. Part of our problem, historically, is because we have been negligent. I'm glad to see you're now looking in the direction, of stressing the value, of protecting the environment.

But what we have throughout history is man converting the environment to his own use, and in the process we've been a little negligent, and I'm glad to see that we are recognizing that. I would like to put in the record here a statement I made in 1972 on the House Floor.

[The information follows:]

ENVIRONMENTAL PROTECTION NECESSARY, LAW SHOULD NOT BE USED TO DESTROY ECONOMY

Mr. WHITTEN. Mr. Chairman, I happen to be the chairman of the Appropriations Subcommittee on the Agriculture, Environmental and Consumer Protection which will handle the appropriations for this program.

Luckily for me, in 1966 I had written a book, "That We May Live", a half chapter—page 176—81—of which is devoted to the absolute necessity that we do something to restore and protect the environment. In that book I pointed out many of the factors with which we have to deal to get the job done; the help, the cooperation we would need; the cost we would incur; the decisions we would have to make separating the undesirable from the downright dangerous; pointing out that we had to maintain our day-to-day business as we proceeded.

Mr. Chairman, I repeat my words written in 1966 in my book "That We May Live":

EXCERPT FROM "THAT WE MAY LIVE," WRITTEN BY JAMIE L. WHITTEN, MEMBER OF CONGRESS, PUBLISHED 1966

This is not to say that pollution of air and water does not exist, for, of course, it does. Pollution is part and parcel of man's unplanned and unthinking change of his environment; and particularly is it a part of the subject under discussion in *Silent Spring* and here. Public opinion here seems to be on the move toward action. This public temper can be good if held in balance. It can do more harm than good if not kept on an even keel.

Pollution comes from many sources and becomes greater as our population increases; unless we take corrective action, it will become worse as we become more and more industrial. We do have pollution of the air and water and apparently are going to do something about it. These facts lead me to point to some of the factors with which we must deal as we attempt to meet this problem.

The fact that air is essential to life is as old as knowledge. The fact that polluted air can cause discomfort is probably just as old. As soon as primitive man moved his fire into his cave, he certainly became aware of air pollution in the form of smoke.

He also probably soon learned to reduce the smoke in his cave by careful placement and stoking. He then decided to accept some smoke in return for the warmth and convenience of the fire nearby.

We have been weighing pollution against convenience ever since. Now we are beginning to realize that more than convenience is involved and that the air around us is not a limitless sea into which we can continue to pour waste without serious consequences.

Thus did the "Agriculture Yearbook of 1963, A Plea To Live," describe one of the serious problems of our day, air pollution.

The increasing pollution of our water unquestionably is a threat to fish and health. This became a matter of public concern in the United States in the late nineteenth century, when virulent typhoid epidemics appeared in various cities. The then new science of bacteriology identified many of these outbreaks as the result of contaminated water supplies. The public outcry against pollution was great. Public health officers attempted to meet this challenge in two principal ways.

The first was to select certain streams for waste disposal and to reserve other, and protected, streams for municipal supplies. This is the method followed by communities fortunate enough to own or control adequate watersheds. However, with our increasing population, it is virtually impossible today for one city to live separately and apart from another. While one city may protect its water supply, it will be adversely affected if those in adjoining areas do not do likewise.

The other method was the filtration and disinfection of water. This has permitted many cities to have reasonably safe and palatable water, even from such heavily polluted sources as the Missouri, the Mississippi, and the Ohio rivers.

While these systems have worked for many years we now face a period when we must give full attention to water pollution, or else pay substantial penalties in the future. We have some 30,000 sewerage systems and industrial complexes pouring waste into our streams. Included are 10,000 municipal sewerage systems, serving more than 100 million people, which dump sewage into the waterways. Twenty-five per cent of this load is without any treatment whatsoever.

Pollution degrades the physical chemical, biological, and esthetic qualities of the water.

The degree depends upon the kind and amount of pollution in relation to the extent and nature of reuse. Pollution can be just as effective as a drought, or excessive withdrawals, in reducing or eliminating water resources.

Over 2600 new or enlarged sewage treatment works are needed to serve 27.8 million persons living in communities presently discharging untreated or inadequately treated sewage. Another 2598 new sewage collection systems and treatment works are required to serve a population of 5 million living in urban areas where individual disposal systems have failed to function properly.

By the year 2000, thirty-four years from now, we will be around 330 million Americans as against today's 194 million. We will have nearly doubled the quantity of sewage going into our streams and protecting the public health will really be a problem.

Today's 194 million Americans are abusing our resources so far as our use and handling of water is concerned. Our lakes and rivers have become catch basins for the residues of our factories, automobiles, household and agricultural chemicals, for human wastes from thousands of villages, towns, and cities. How well we clear up this situation and learn to handle it without restricting man's means of providing our high standard of living may well determine the future of our nation.

As we approach this problem we must keep in mind that the power to control water quality or quantity is not only the power to make or break business but is a power over the life of the nation itself.

Since water is an absolute essential to health and to all man's activities, any group we set up to control water on any basis, by restrictions for protection of its quality or quantity and use, must have not only the cooperation and co-ordination of all departments and agencies, but all interests must be represented. The Department of Agriculture and the Department of Health, Education and Welfare, whose interests are tied together, should have a place in any such group, as should the Department of Commerce; but these are not enough. The states and municipalities must be represented so that the varied interests of all our citizens may be recognized and provided for, including riparian rights, established use, and the determination of priority to use. All this need carries with it the problem of built-in bureaucracy, of too many cooks, yet there is seldom an easy answer to a difficult problem.

If we closed all our manufacturing plants, that would greatly improve the purity of the water in our streams; if we stopped driving automobiles, just think what that would do to improve the atmosphere—and a single departmental head could have done that under several bills; if we could return to the 800,000 population level of this country at the time it was discovered by Columbus, nature would be able to largely eliminate the pollution problem. But with 194 million people we could never live in the simplified way of that day. Neither can we ask nor could we force the residents of New York City to quit eating, quit living, and quit breathing while we clean up the Hudson. The same is true for Washington and the Potomac, as well as the people of thousands of towns and villages. The power to set standards is the power to control, yet some Members of Congress have urged that such power be granted to a single government department.

Agriculture's claims and responsibilities for the use of water are second to none, for agriculture provides our food, clothing, and shelter, the basic necessities for life. In addition, agriculture has a great responsibility in the use of water, for land is the great gathering place and reservoir for storage of water. Just a few years from now we will need three times the water we use today, all of which points up the need to protect and manage the quality and quantity of our water supply.

In our work with the Appropriations Subcommittee for Agriculture, we find the close cooperation and coordination of efforts by both the Corps of Engineers and the Soil Conservation Service are necessary in watershed and flood control programs, both of which are highly essential to water protection. We would not expect a skilled surgeon to use only one instrument for all operations, nor a mechanic to fix our car with a sledge hammer. Thus it is with water pollution; we must use the tools required for the job; and most importantly, we must keep the factory running in the process and not turn the surgeon's scalpel over to the mechanic or vice versa.

To do the cleaning up job on pollution, we must call on industry, on the federal, state, and city governments, and on individuals. We need financing and regulations, in the meantime, we must maintain a sense of balance, so that we do not tear up more than we correct. We are not merely limited to the practical but to the possible.

NEED FOR ADEQUATE WATER SUPPLY AND QUALITY

Mr. **Whitten**. The other thing I hope you'll put in the record is some years ago, if you had natural gas, you could get in any industry. It's nearly getting that way with water now, nationally.

The water table is dropping way down. So I hope you'll put in the record what activities you have in connection with trying to deal with water and this, that and the other.

Mr. **Runyon**. I would be pleased to provide that for the record.

[The information follows:]

Groundwater Depletion

A steady decline in the water table is a real problem in the northeast Mississippi portion of the Valley. TVA has been working in cooperation with the Corps of Engineers and local officials from Tupelo and Lee County, Mississippi to create a dependable surface water supply supplement to groundwater resources. The solution has been to utilize water from the Tennessee-Tombigbee Waterway. A pipeline and water treatment plant are under construction. Also proposed are extensions of the system north and south from Tupelo to supply industrial users and communities as well as relieve pressures on local groundwater sources.

TVA is also cooperating with local officials in Alcorn and Tishomingo counties and a portion of Prentiss County, Mississippi in having an engineering study performed for a regional water supply plan. This plan will describe the most feasible and economic methods of implementing a surface water system to serve that region.

Mr. **Whitten**. Mr. Chairman, I thank you for letting me go ahead at this time.

Mr. **Bevill**. Thank you.

The Chair recognizes Mr. Myers.

Mr. **Myers**. Thank you, Mr. Chairman.

First, Director Dean, I join my colleague in wishing you well. It doesn't seem like you've been there nine years.

I guess I've been one of those people who was a critic a long time ago of the Tennessee Valley Authority. I've tried to be a constructive critic. Certainly, it wasn't that I had any criticism for criticism's sake, and I don't believe I've ever taken a cheap shot.

But I think years ago the Tennessee Valley Authority wasn't operated as it should have been for the service that you needed to perform for the area that you serve, as well as the constituency that you have. I have been a critic in the past, I must admit.

But I think it has certainly, Director Dean, been a real rough period that you served in. It hasn't been exactly easy up here either, but I know you've had some very difficult times with the many problems.

Rates have been one of them, of course. Changing direction a little bit, not to diminish the fact that you had the unhappy experience with your nuclear decision, I think you made the right decision to start with, but then we went through an era there, through no fault of yours, and you got caught on the horns of a dilemma.

So I think you've done a great job. I believe today that TVA is a stronger institution than it was when the Chairman and I came on this committee years ago.

I think people like yourselves and you people here have really brought it a long way, so I join my colleague in thanking you, Director Dean, and the others that have served in the past and who are continuing to serve, for the job you're doing.

I have just some general questions here. I'll ask one or two of them on the record here today and then include the rest of them in the record here.

TVA RATES

First, the rates. I know it wasn't too many years ago there was a lot of criticism from within your area of the fact that there didn't seem to be enough competition, that your rates were going up more rapidly than other utilities were charging. You have done a good job in stabilizing those rates, I think, in the past.

CLEAN AIR LEGISLATION

I am concerned now about the proposed acid rain legislation. I don't think there's any question that some form of acid rain legislation is coming down the pike. Have you given any consideration to what impact the Administration's request for acid rain legislation or clean air legislation might have on your utility users, what it would do to your rates?

Has there been any consideration or any thought given to that?

Mr. **Runyon**. Yes, sir, there has. The bills that are under consideration now, as we understand them, would create capital cost for TVA of $1.5 billion to $2.1 billion, depending on what legislation passed. There would be an operating and maintenance cost of from $600 million to $850 million by the year 2000 if one or the other passes.

So that is what the cost is. Now, what that relates into rates could be a different matter now, because we're looking very much at our costs every day, and we're trying to figure out how to reduce our costs.

We have a goal of reducing our costs five percent every year. By reducing our costs hopefully we would be able to have built up enough savings to help offset some of those costs.

So we're looking at that as we go along, and also as we bring our nuclear plants on stream, there's a cost associated with those?

We're looking at how do we continue to get better? How do we continue to reduce our costs so we can lessen the rate shock that might come along with those things?

One other thing. If we did nothing until the year 2000, the rate would increase by eight to ten percent.

Mr. MYERS. Absent any clean air legislation? You mean, just normal inflation would increase it eight to ten percent?

Mr. RUNYON. No, with the clean air legislation.

Mr. MYERS. Oh, the clean air legislation. Okay. It's an eight to ten percent additional rate that you're anticipating, and that's not considering that the cost of coal may go up or many other things.

Mr. RUNYON. That's right.

GENERATION REPLACEMENT

Mr. MYERS. The generation that you presently have, are you going to have to replace any of that generation in the next ten years? Is it likely to need to be replaced because it's worn out?

Mr. RUNYON. It's not worn out, but it's worn. We continue to put money into our maintenance budget so that we can bring those operating units back up to where they should be.

During the past five years, the fossil units have been worked very hard because the nuclear units were not there, so they were worked all out. This followed the period when the nuclear units were being built. There was the thought that some of the fossil units would be shut down, so maintenance was curtailed on them.

Why spend money on a facility that's going to be shut down? So now we're having to catchup, and that's what we're doing. We're catching up, and we're going to have those units back in tiptop shape in a few years. It's going to take a while to get them there.

POWER SALES

Mr. MYERS. During the past year, have you purchased power or have you sold power? What is the balance between purchase and sale and self-generated power?

Mr. RUNYON. Yesterday, we were selling 450 megawatts. For the past eight to ten months, we've been a net seller of power. Before then, of course, we were a net buyer, but we've been a net seller for about eight to ten months.

Mr. MYERS. That's because of the nuclear addition?

Mr. RUNYON. And our fossil and hydro systems. The hydro has been very good this year. As you know, we've had a lot of water.

Mr. MYERS. You're one of the fortunate areas in the country that has had it.

HYDROPOWER GENERATION

Mr. RUNYON. We've had people have too much water there. Actually, we've had to store a lot of water. I don't know whether people realize it or not, but if we have too much water, we can't generate as much hydro, because the generation of hydro depends on the amount of head you have, when you're having high flows, on the main river, you raise the level in the tail waters, and that cuts down on the amount of power you can generate.

Mr. MYERS. I don't understand that. It would seem like if you're overflowing, there would be a higher head.

Mr. RUNYON. Well, the head can only go so high.

When you get the head and tail waters even, you can't generate power. Of course, you don't ever get them even. I'm taking it to the extreme.

Mr. MYERS. Okay. Sometime when I've got more time I'll try to figure that one out. I may not have that much time. I don't know.

Mr. RUNYON. The first time I walked into one of those hydro plants, I said how are things going? The water was pouring over the top, and he said, well, we're operating at about 75 percent.

I said 75 percent, what's the problem? He said, well, that's all you can get now. I said, well, it's running over, and he said if it wasn't running over we could get 100 percent. I said okay.

NUCLEAR POWER

Mr. MYERS. That's the way we balance the budget, too. We have all kinds of excuses, but they don't work. We don't fool the public out there.

Since you're discussing nuclear, what about your Watts Bar plant? When is that going to be on line?

Mr. RUNYON. Well, the next unit we're going to bring on line is unit two at Browns Ferry, and we expect to do that this year.

At Watts Bar, the first unit would be number one, and we would expect that to be roughly 18 months after Brown Ferry comes on.

Mr. MYERS. So in the next few years, you're going to bring on several units. Since you mentioned Browns Ferry there, is that a problem now? A few years ago, you had a serious fire. It wasn't nuclear related, but then, of course, the whole world looked at that and said, "Oh, no, they've had a nuclear disaster, haven't they?" But, there are no problems now?

Mr. RUNYON. No, that's not a problem anymore.

Mr. DEAN. There's a residual problem, Mr. Myers, that's kind of interesting. When TVA rewired that plant in 1975, they did a really remarkable engineering feat, I mean, to rewire a plant with a bunch of burnt out wires, and the plant has run quite a bit since then.

But in order to rewire it, they brought wire in from just about any other plant at TVA. They just got it wherever they could find it. Now, we're having to go through a period of qualifying that wire environmentally to survive in a theoretical nuclear accident.

So one of the problems we have is the fact they did a good job and they did it quickly, but they borrowed wire from all over the place.

Mr. MYERS. Is that aluminum wire on some of those things?

Mr. DEAN. It was all kinds of wire, but we had to pedigree every bit of it, and when we can't pedigree it, we have to pull it out and rewire.

That's one of the things that's making it take so long to get Browns Ferry up.

Mr. MYERS. Additional cost, too, then.

Mr. DEAN. Yes, sir.

TVA BUDGET REQUEST

Mr. MYERS. That quite often happens in similar situations in other industry, too.

I notice that in your early remarks, Chairman Runyon, that you mentioned the Administration's request. What about your non-power request?

I had been one of the critics, and I have sometimes felt that you went overboard in some of the areas other than power production. I know you do great work in this area, but some of the things you've done, I wondered if it was really in your area. What was your request in the budget for non-power?

Mr. RUNYON. It was $142.4 million.

Mr. MYERS. How much of that would be recovered by actual sales and revenue coming back into TVA?

Mr. RUNYON. Very little of that would be recovered. Actually, what we would do is have a larger operating budget in our appropriations.

Mr. MYERS. Your total budget request was $142 million, but how much was non-power? Most of that was non-power?

Mr. RUNYON. It's total non-power. We have no power budget.

Mr. MYERS. But the fertilizer would have some cost recovery, wouldn't it? Some of these other areas, navigation and all those things, don't you get some reimbursements from all of that?

Mr. RUNYON. There's some recovery in fertilizer, but I'm not aware that we have any recovery in navigation.

Mr. MYERS. Okay.

Mr. WATERS. No, there's none on navigation.

Mr. MYERS. You don't get any kind of a trust?

Mr. WATERS. We'll benefit from that in building the locks, but as far as operations, we don't get anything back.

Mr. MYERS. Okay.

Mr. DEAN. On the fertilizer, Mr. Myers, even though we sell fertilizer and we do custom work for fertilizer companies, we are the research center.

Mr. MYERS. I knew that.

Mr. DEAN. Whatever we get from appropriations we supplement with contracts we make with other people, so we don't therefore have to ask this committee for as much money as we would otherwise.

All of that is a matter of record. We keep good records and can show you any time.

Mr. MYERS. The difference between $142 million that you originally requested from OMB and what they finally came up with which was $90 million, where does that difference come from? What would not be done if you didn't get all the money?

Mr. RUNYON. I'd like to submit a list of those things for the record, if I could, but let me just talk about that for just a minute.

For example, the reservoir water quality assessment resources would be cut in half, and now when our monitors identify water quality problems, that work determines the cause and helps us find a solution.

We'll have to suspend further studies on replacing locks on the upper Tennessee River, and Congress specifically directed TVA to continue this work in fiscal year 1990.

We'd be forced to eliminate all of our National demonstration, cooperative research and training efforts at Land Between the Lakes, including all teacher and student training and environmental education programs.

We'll have to cancel all our rural development work, including all job creation and skills development activities and technical assistance in municipal waste reduction. Solid waste disposal these days is a huge problem that we think we really need to be working on that.

We'll have to eliminate our environmental research and development work with fertilizers and other farm chemicals. We won't be able to help farmers use those chemicals in a way that reduces non-point source solution.

So those are just some of the things that I would like to point out, but there are many more, and we will submit them for the record so you'll have the whole list.

[The information follows:]

TVA ACTIVITIES ELIMINATED OR REDUCED

All of the functional areas of TVA's nonpower programs will be affected. Further examples of these consequences include:

STEWARDSHIP - will terminate the TVA/USACE aquatic weed project on Guntersville Reservoir to stock the reservoir with the white amur (grass carp) in order to control milfoil and hydrilla which are choking the reservoir.

WATER AND LAND - will cease dissolved oxygen improvement efforts at 5 dams, including capital investments. Low dissolved oxygen levels below TVA dams have a direct effect on the health of fish and result in increased municipal and industrial waste-water treatment costs. Also eliminated will be TVA's environmental education program and completion of the TVA-University Environmental Education Network. This program received Presidential and international recognition for its instructional materials, teacher-training methods, and network design. Elimination also thwarts an effort by an alliance of 40 non-profit organizations (National Wildlife Association, Boy Scouts, National Education Association, etc.) to replicate the network on a national basis.

LAND BETWEEN THE LAKES - will terminate 50 university and non-profit cooperative projects, including species restoration work. Reductions also limit TVA's ability to generate results at LBL. Funding is reduced by almost 50 percent for operation of public services, interpretative programs, and environmental education. Visitor assistance will be limited to the one central Golden Pond visitor center; tours and demonstrations in the field and campgrounds will be eliminated, as will special events such as the "Eagles Weekend". Many facilities will have to be closed. Most of these are unique to LBL and receive more than one million visits each year by campers, school children, and general visitors from almost all 50 states. Specific sites include: The Homeplace 1850, Empire Farm, welcome stations, Woodlands Nature Center, and Brandon Spring Group Camp.

RURAL DEVELOPMENT - all programs and activities are eliminated. Examples include: All activities supporting research, demonstration, and technical assistance in municipal waste reduction and management, including recycling and constructed wetlands waste water treatment are eliminated. TVA's manufacturing competitiveness program is eliminated, which supports technical assistance in areas such as transportation rate analysis, market research, financial resource identification, and industrial engineering assessments. In 1989 this program, working with 250 existing businesses, assisted in creating 7,300 new manufacturing jobs. Activities which stimulate domestic and international trade, especially in forest products, are eliminated. TVA efforts in 1989 resulted in increased export sales of over $11 million.

Also eliminated is the SOC program which works in the poorest counties, and in 1989 implemented 29 projects which assisted in creating some 2,000 jobs and leveraged $15.8 million in private investment. Nine of the projects were made possible by the use of funds repaid from previous SOC projects.

Another example of the activities that are eliminated is TVA skills development activities. These activities typically reach over 10,000 individuals annually in high-technology work-force development and retraining, as well as basic worker skills and literacy development. Results of these efforts make it possible to create skilled jobs in locations that would have been impossible before.

NATIONAL FERTILIZER & ENVIRONMENTAL RESEARCH CENTER - The biomass program aimed at completing hardwood-to-ethanol research in 1991 and pilot plant verification of research in 1992 is eliminated. This will also eliminate a new area of biomass research to adapt TVA-developed technology to solving municipal solid waste problems.

TVA made a commitment in 1989 to move fertilizer production development technology away from capital investments in the intermediate-scale plants and to focus on prototype-level technology. However, no funding is provided for any of this work in 1991.

Reductions occur in all areas of fertilizer research and development. This will reduce the scope of our basic research in the laboratory and in the field. For example, we now expect to actually introduce 25 percent fewer experimental fertilizers than this year. Equally important, we will reduce field testing from 35 to 25 states and reduce the total number of test sites from 420 to 300.

RESEARCH ACTIVITIES

Mr. **Myers**. We see all of the things you've mentioned, though, there are other Federal research programs being conducted by the Department of Agriculture, EPA, and some by the Department of Commerce. The Department of the Interior is also doing research in some of these areas.

For example, in water quality, last year, we appropriated an additional $45 million plus for water quality studies.

You mentioned non-point source pollution to which agriculture is the big contributor. We appropriated additional funds on top of what was already requested for studies and research on how agriculture could better produce without contributing to the pollution problem that we presently have.

You also mentioned insecticides and chemicals. Well, this year there's a request for about $13 million more for studies of agricultural pesticides intrusion into water to be done primarily by universities.

Do you do any of those studies for the Department of Agriculture or EPA, and do they help pay for some of these programs that you have the expertise and experience in?

Mr. **Runyon**. Yes, we do. We do programs for, I think, all the agencies you mentioned and more, and they do fund it. When they ask us to do a specific project, they pay us to do that. That's over and above what we do with the money we have.

Mr. **Dean**. Mr. Myers, our people are always careful, and I've been told this over and over and I've come to actually believe it. We're very careful not to duplicate the work that other people are doing. I think that's one of the things you're trying to get at.

Mr. **Myers**. That's been one of my criticisms through the years.

Mr. **Dean**. Yes. Well, I don't think we're guilty of that. For instance, in fertilizer research, our people are working on a nitrogen which will stay put and not leach.

Mr. **Myers**. It doesn't leach?

Mr. **Dean**. Doesn't leach. That's one of the things we're working on.

Mr. **Myers**. Could I buy a few tons of it? I've got about 12 feet of water over my farm right now, and if you've got one that won't leach out into that water, I'd sure like to know about it.

Mr. **Dean**. Well, I don't know whether we've got it perfected or not. We have a sulfur-coated urea that stays in place a lot better than the old one.

Mr. **Myers**. Well, I'm being somewhat facetious, but I do have 12 feet of water on part of my farm right now.

Mr. **Dean**. Well, you've lost a lot of nitrogen, that's for sure.

Mr. **Myers**. I lost it twice last year. I lost a lot of corn with it, too, twice. We can't stop flooding on the Wabash. You've heard about that before, though. I've talked about getting TVA up there. Maybe if you came up, we'd stop flooding.

Well, I appreciate the job that you have done. Director Dean, we wish you well, and as you say, I hope you don't forget us.

Business goes on, and even though you won't be on the front line, I hope you'll be back advising us, both the TVA and those of us up here.

We need lots of help and lots of advice. I do thank you for the job that you have done. I think TVA is better today than it was years ago when the Chairman and I first came on this committee, and at least we don't have all the criticism that we heard years ago. So we thank you for the job that you're doing and for the job that the rest of you continue to do.

I have some other questions that I will put in the record. Thank you.

FERTILIZER RESEARCH

Mr. **Waters**. Mr. Myers, let me add one thing. I just noticed in my notes here, you were talking about the fertilizer development work that TVA has done. None of that is duplicated.

TVA does all the fertilizer development for the entire Nation. The Department of Agriculture or anybody else in times past have done research for new fertilizers, and 75 percent of all the fertilizers used today were developed at Muscle Shoals, TVA.

This is a National demonstration. It's not just for the benefit of the Valley, of course, as you know. Last year, we got $8 million from outside income on the fertilizer. Three-fourths of that came from other Government contracts, where others contracted with our chemical engineers in Muscle Shoals to do some kind of research, while a quarter came from private sources.

We have a goal to try to get $10 million this year. Now, when you add that to our total of appropriated funds, we'll spend probably somewhere around $20 million.

A fairly significant part of that income is coming in, and they are now directing the research toward environmentally safe ways to use fertilizer.

You know, fertilizer is a big contributor to non-point pollution, and it's a real problem.

Mr. **Myers**. Pesticides, too, of course, are contributors.

Mr. **Waters**. Yes, it is. We're trying to address that. Have you ever had an opportunity to come to Muscle Shoals?

Mr. **Myers**. I've had a lot of opportunities, but I've never gotten there.

Mr. **Waters**. I guess that's right. Some of the most brilliant chemists and chemical engineers in the world are down there, and I guess you would enjoy seeing some of the things.

Let me just give you one little example that I just saw the last time I was down there. A young brilliant Ph.D. in chemistry was experimenting with a gel because they had figured out that a toothpaste-like gel will hold the fertilizer in the soil much longer than anything else they've found.

Mr. **Myers**. But does it get out where it helps the plants?

Mr. **Waters**. Well, yes, it releases it slowly for the plant and keeps it from dissipating into run off from the soil.

This is certainly a long way from being something you're going to see on the shelf or in the feed store, but it's one of the things they're working on. It was kind of exciting to see him running his experiments.

Mr. **Myers**. We're aware of the great work that you have done there and elsewhere, and we appreciate that.

But again, I wonder if industry is utilizing you enough, the chemical companies, the fertilizer companies. Are they helping fund some of these projects?

Mr. **Waters**. Yes, they are. We're putting more and more burden on them, and quite frankly, they're responding. Of course, unfortunately, the fertilizer industry, as you may know, is not good.

Mr. **Myers**. Farm prices haven't been the best. I'm using about as much fertilizer, I have to. We realize the work that you're doing there and appreciate it.

Do you mind expanding on the record and indicating how you get matching dollars and how you have to have some seed money to start and to keep your base there?

You can't let all of your scientists get away, we realize that, but if somebody else is helping pay the bill, that makes it much easier. I think you all recognize that we here are under restraints each year more and more so that we don't have the dollars available to spend because of Gramm-Rudman.

Again, I didn't vote for Gramm-Rudman, but we still have to live with it. It's something that all of us have to live with, and striking that balance is becoming more and more difficult each year.

We're getting there, but it's not without pain. So we do thank you.

Have I told you guys I've got a flood again this year? The third time in a year my farm has flooded.

Mr. **Bevill**. As we say in Alabama, John, you'll just have to start paying the preacher more.

The Chair recognizes Mr. Pursell.

TVA RATES

Mr. **Pursell**. Just a couple of questions. You say 1,000 kilowatts is $56. Is that the rate?

Mr. **Dean**. I think that's the average residential rate.

Mr. **Pursell**. Are they above or below general utility rates in our country?

Mr. **Dean**. That's about two cents less per kilowatt hour than the average residential rate. TVA's average is 5.7 cents per kilowatt hour while the average U.S. rate is 7.6 cents per kilowatt hour.

Mr. **Pursell**. So you're in the ball park.

Mr. **Dean**. Yes, sir. We're on the low side, because we do have the benefits of the hydro system that helps our residential rate. There was a study made recently that showed we were 23 percent below the National average.

Mr. **Pursell**. If you didn't have the appropriation, where would that rate be?

Mr. **Dean**. Same place. It wouldn't vary one bit. The TVA power system is self-financing and does not receive appropriations.

Mr. **Pursell**. It wouldn't affect that?

Mr. **Dean**. In addition to that, we're paying back to the Federal Government its investment in hydro power. So this year we'll pay the Federal Government approximately $100 million, most of which is interest on the notes.

LAND BETWEEN THE LAKES

Mr. **Pursell**. I had a chance to visit the Land Between the Lakes last summer. I married a girl from Tennessee, so I guess I'm half okay.

I couldn't help but notice the participation in recreation in that area. Is 300,000 the figure you use? Is that an accurate number?

Mr. **Waters**. Well, yes. Are you talking about annual visits?

Mr. **Pursell**. Yes.

Mr. **Waters**. No, it's much more than that. I think I've got that here somewhere.

Mr. **Pursell**. Could you give that for the record?

[The information follows:]

LBL Visitation

Fiscal year 1989 visitation to TVA's Land Between The Lakes national recreation and demonstration area increased to 2.135 million, or 6 percent over 1988. Sightseeing continued to be the chief activity, with 41 percent listing it as their main reason for visiting. Fishing accounted for nearly 20 percent and camping 14.5 percent. The Homeplace—1850 living history farm continued to be the most popular visitor facility, attracting 78,000 guests.

Mr. **Pursell**. I was struck by the low turn outs during the summer and the opportunity for taking advantage of the lakes and the cabins and the recreation centers and the exhibits that I thought were well done. I want to compliment you on that, but I'm sure you've had serious discussions in terms of public relations and promoting that area as a national center.

But it certainly doesn't have a focus, obviously, of Nashville or the music center. What initiative is taking place to try to encourage more participation, with user costs helping to finance and put money back into the system?

Mr. **Waters**. We're working right now on a development plan. The Board was briefed on it in the last month about how we can increase the operation of LBL so as to assist the economic development up there. There's not a lot going on up there, as you know.

Mr. **Pursell**. Are you actually looking for more tourism during seasonal periods, or does the native farm population tend to say we don't want tourists?

Mr. **Waters**. The lakes are bringing people in there and the waterfronts, and that hasn't been developed. We're encouraging private development, not in LBL, of course, but in surrounding areas up there.

Mr. **Pursell**. How much land do you have in your system?

Mr. **Waters**. There's 170,000 acres in the LBL tract, and what we're trying to do there has impressed me. I live near the Great Smoky Mountain National Park, and certainly I understand National parks and National forests, and the use of those is a tremendous benefit.

We're trying to show in LBL, and we're training students and teachers there, how we can live on the land, farm it, hunt, fish, take all the products from it and still keep it in an environmentally sound manner and not spoil it.

We've done some good things. We've got some farming going on, and, of course, there's an awful lot of wildlife, a lot of camping and hunting.

Mr. **Pursell**. Is there much residential growth in the region at all? Is that fairly limited?

Mr. **Waters**. I can't say there's much. It's still small on a net increase side.

Mr. **Pursell**. So your initiative or your development project is mostly in the field of public relations and marketing?

Mr. **Waters**. That's right. Now, there's no growth in LBL. We don't allow any commercial operations.

Mr. **Pursell**. That's a reserve. I understand that.

Mr. **Dean**. We're trying to think of ways to get people to leave the interstate and come over there and see LBL, because, as you know, it's worth the trip once you get in there.

Mr. **Pursell**. Yes, it's a beautiful piece of property.

Mr. **Dean**. That's a promotional thing, and, of course, it's the second largest Federal property anywhere east of the Mississippi, second only to the Smokies.

Mr. **Pursell**. Well, it appeared to me in comparing that to areas around the United States that I've seen over the years that that's a relatively excellent, unmarketed, unknown diamond in the rough that many people have never had the chance to appreciate.

With all the good work and appropriations and effort that's gone into that, it seems to me there ought to be a way to market that.

Mr. **Runyon**. Some of the money that you're appropriating to us will be used to improve some of these camp sites. There are a lot of campers, and they like to pull their trailers in.

Mr. **Pursell**. Our State parks in Michigan are just jammed. We have to turn people away. All the historic things you have there, you don't see that in normal campground sites. I think the tourists, the senior citizens, and the RV and trailer people would enjoy it. I got the impression, though, that maybe the natives don't want that.

Mr. **Runyon**. No, the thing is the natives don't want us having private business in there.

Mr. **Pursell**. I understand that.

Mr. **Runyon**. They would like to see us do more there to attract people and keep them there overnight or for two days.

Mr. **Pursell**. Just tourists passing through.

Mr. **Runyon**. The tourists are good for their business. As a matter of fact, right now at LBL we don't have boat docks on the LBL side. On the other side, there are boat docks.

Mr. **Pursell**. Most of those small towns are looking for tourists for restaurants and gift shops and others.

Mr. **Runyon**. So they'd like for us to figure out how to improve what we've got there, such as more places for people to spend the night in a tent or whatever. They could come in there and see the exhibits and spend the night or two days.

That's what this plan was that was presented to us recently, and we're studying that.

Mr. **Myers**. Is there a user charge?

Mr. **Pursell**. Yes, there's a user charge for cabins, rentals and hunting and fishing. We paid our fees like everybody else.

POWER GENERATION

You have a coal plant, too, don't you? You have the nuclear and the coal fired plants?

Mr. DEAN. Seventy-five percent of our generation is coal right now.

Mr. PURSELL. How many nuclear plants do you have operating?

Mr. DEAN. Well, we have two reactors running, and we've got three more that are licensed and four more under construction. So that's a total of nine reactors.

Mr. PURSELL. You have no gas operated facilities?

Mr. DEAN. We use gas for peak shaving sometimes, particularly in Memphis and places where we're near a pipeline. Those are dual fuel units. They can be switched from gas to oil.

Mr. PURSELL. We have a company in Michigan, Consumer Powers, who took Midland, an old nuclear plant that had all kinds of failures, problems and extensive litigation in the courts for a lot of different reasons, and converted that to a gas generated facility. They're going to open that this Spring.

It's a wonderful conversion to power and utilizing a facility that was not producing any energy in the Dow Chemical Midland area.

I thought maybe you might want to take a look at that as an alternative.

Mr. RUNYON. I've been to that plant to see what they had done, and they have one big advantage there. Dow is right across the river, and they're able to pipe their steam, which is a byproduct that you can't use for anything. They can pipe that and sell it to Dow.

So that was a big factor in making that a workable situation.

Mr. PURSELL. Yes.

Mr. WATERS. Incidentally, though, we met with senior management at seminars and have been in conferences with them. We'll pick anybody's brain that we can, and they're obviously smart people.

Mr. PURSELL. I was just thinking there might be some alternatives there that have some advantages for you.

Well, thank you, Mr. Chairman.

AQUATIC PLANT CONTROL

Mr. BEVILL. Could you briefly describe the aquatic plant control measures you will be demonstrating this year on the Guntersville Reservoir and what success you have had so far?

Mr. RUNYON. In that particular area, there are several things that we're looking at to control those weeds. We're even mechanically harvesting them.

The other techniques are such as lowering the water levels and letting the sun take care of the problem. That's another technique that we're using.

We think we're making some progress. In our budget last year, I think we had something like $2 million, and we have about the same amount in there this year, so we think we're making progress.

Mr. BEVILL. Are you still coordinating your efforts with the Corps of Engineers?

Mr. **Runyon**. We certainly are.

Mr. **Bevill**. Are you also keeping in touch with some of the other countries that are having the same problem and are trying to come up with a solution to the problem?

Mr. **Runyon**. I'm sure that our people are. I'm not aware of that, but we will submit that for the record.

[The information follows:]

International Aquatic Weed Problems

One way TVA keeps in touch is through its close working relationship with the U.S. Army Corps of Engineers (USACE) Waterways Experiment Station which contracts with foreign governments to support control technologies, especially research into biological control methods. For example, active collaborative governmental programs are underway in Australia to search for insects that can be used to control hydrilla biologically, and one element being considered in the joint USACE/TVA demonstration is to further test the effectiveness of the hydrilla fly.

Close liaison has been maintained for several years with Canadian aquatic plant management specialists. European contacts are maintained through the World Health Organization (to which TVA has served as a technical consultant) and the international professional organization of the Aquatic Plant Management Society. Opportunities for closer collaboration exists through the European Weed Research Society which meets annually in Europe to discuss weed technology. For the most part, however, current research and development technology is being transferred abroad from U.S. based agencies.

Mr. **Waters**. You're familiar, of course, with the grass carp that we experimented with there. It's been released, and we're watching that very closely.

It's an interesting situation, and hopefully it will be helpful, because, quite frankly, as you know, Mr. Chairman, Guntersville has an infestation that's pretty bad.

Mr. **Bevill**. Yes.

Mr. **Waters**. It's one of our worst TVA lakes. Last year we treated 4,500 acres on that lake for aquatic weeds, and we hope to treat another 4,500 acres this coming year.

You have to be careful, of course, with any chemical controls you use. They certainly have to be environmentally safe and approved by everybody that does that. It's a difficult thing to do.

Also, you know, you have a little bit of a problem sometimes. The fishermen like weeds and the boat people don't. In some places they're not really considered too bad.

Mr. **Bevill**. Of course, your goal is still to control these aquatic plants because the fishermen and the fish like to have that plant. But you do have to keep it under control; otherwise, all the navigation and all the other users of the Tennessee River would be in trouble.

So that is still your goal, of course, is to keep control.

Mr. **Runyon**. It's a water kudzu.

Mr. **Bevill**. Yes.

Mr. **Runyon**. You have to control it.

LONG-TERM DEBT REFINANCING

Mr. **Bevill**. Earlier this year you refinanced a significant portion of TVA's long term debt to achieve lower interest rates. What was the result of this, and have there been any adverse impacts? Now, you touched on it, but we'd like to get that answered.

Mr. **Runyon**. We refinanced $8 billion in two different offerings on Wall Street, and the result of that, along with another $800 million that we had done earlier, was to save our customers $150 million annually in interest payments.

Starting out, we had interest payments as high as 14.5 percent on some of our notes. We now have that down to where the average interest that we're paying a little below nine percent.

It was at ten percent, the total interest payments. Our competitors, the private utilities, were at about nine percent. So by making the action that we did in refinancing the $8 billion, we were able to get into a more competitive range with them. We're a little below where they are right now, as a matter of fact.

Mr. **Bevill**. So that's a tremendous savings.

Mr. **Runyon**. It's a big savings for all of our customers.

Mr. **Bevill**. You haven't missed a payment in the more than 50-year history of the TVA paying the Government back for what the Government has invested into the TVA system.

Mr. **Runyon**. No, sir. To my knowledge, we have never missed a payment.

Mr. **Bevill**. So actually, the Government is getting its money back plus interest.

Mr. **Runyon**. That's right.

ENVIRONMENTAL LEADERSHIP

Mr. **Bevill**. All right. Mr. Chairman, you've indicated that you will be concentrating in the 1990s on providing environmental leadership. What do you see as the TVA's role in this area, and how will you ensure that TVA's activities draw upon experiences and research already available from the other Federal, State or local agencies or the private sector?

Mr. **Runyon**. We think there are several areas. For example, in the coal burning area, we're working with the atmospheric fluidized bed combustion that we have now.

We're going to continue to work on that, because we think that coal is an area that we really need to be paying attention to, because we're such a large user.

I guess we're the largest user of coal in this country. So we'll be working on that. Another area that we really are going to be focusing on is the solid waste.

Solid waste is something that's becoming a real National problem, and we are looking now at a solution in using RDF, refuse derived fuel, which is made into pellets and is burned.

There are people that think we can just take pellets and throw them into our present coal fired plants and use them as coal, but that can't be done.

We have done studies on that, and our facilities will not take that. But we're doing experimentation now on what kind of facility could we design, perhaps in tandem with our coal burners, and use with some of our generators that we have without adding too much to the cost.

So we're looking at that. Another thing that we're looking at, and we're doing this at our fertilizer development center, the new environmental research part of it, is we're looking at how we can take this RDF and treat that the same way we're doing hardwoods.

We've been running experiment on hard wood to make ethanol out of hardwoods, because that's a very important thing in the Tennessee Valley.

We have a lot of hardwoods and not much to do with it, so we've been making studies on that, and we've come up with some pretty good solutions.

But now we think we might be able to take this RDF, use it in that process and then end up with a clean cellulose. But when you burn it, you're going to have a problem.

You still have a problem when you take this RDF and burn it, because you still have a stack problem that you have to overcome. That's all part of the experimentation that we're looking at.

Mr. **Bevill**. Will the scrubbers not protect us from that?

Mr. **Runyon**. Well, you could perhaps use scrubbers, but that's part of the experimentation that we'll have to go into as we look at how we can handle RDF.

So that's something that we really are looking at very closely and are trying to figure out how do we go forward with this. It's something that not only does the Tennessee Valley need, the Nation needs this.

We want to be a leader in finding ways to handle this. TVA has been a leader in waste management in the past, and we want to continue to be.

Mr. **Bevill**. Well, I'm glad to see the leadership that you are putting into this, the three of you. We're going to be hearing more about the environment this year in the Congress than we've ever heard before, particularly in April when we take up the clean air legislation. That's going to be passed, it's just a question of what form.

I believe you testified the clean air legislation is going to cost between $600 million and $850 million a year in its present form.

You have scrubbers on every smoke stack of any size in the TVA area, don't you?

Mr. **Runyon**. We don't have scrubbers——

Mr. **Dean**. Mr. Bevill, we use scrubbers where we burn high sulfur coal. But we have some plants, like Colbert, now down in north Alabama where we're spending a considerable amount of money to put on huge electrostatic participators. We burn low-sulfur coal, and the precipitators catch the fly ash.

So there are two ways to go at lowering your output. One is to burn low-sulfur coal, and the other is to burn high-sulfur coal, like we did at Paradise, and put it through scrubbers.

CLEAN AIR LEGISLATION

Mr. **Runyon**. One of the things involving the clean air legislation is that we would like to have flexibility to meet the standard without being legislated on how to do it.

Mr. **Bevill**. I think there's going to be some more flexibility in the legislation. Many of us are putting forth an effort to make some changes on that before it gets to the floor.

Nobody is going to argue with clean air. You know, we passed the Clean Water Bill, and President Reagan vetoed it. His veto was overridden and the bill went into effect. It's going to be the same way with the clean air. I'm not saying that the President is going to veto it this time. I think he's making a real effort to work it out where it will be approved without any veto.

I hope so, because those of us from the coal fields are very concerned about that and what it's going to do. If you have any suggestions, I wish you'd just give me a note on that.

Congressman Dingell has been very open minded on it, and he has kept the door open, as well as the subcommittee Chairman.

Mr. RUNYON. We'll do that.

Mr. BEVILL. I would like to see some way of accomplishing the goal of clean air, and at the same time not add that $600 million or $850 million to the cost of producing electricity.

Coal is still our basic energy. We know that. We know we can't do without coal, and we can't do without nuclear power. Maybe it would be nice if we could do without both of them, but that's not possible.

You all have done a very fine job there, particularly in holding those rates down for two years already, and I get the feeling that you're going to do the same thing at least for another year.

I think that's commendable. TVA has been a great asset to this country and particularly to the fertilizer users. I remember if we had gone along with the Administration's budget four or five years ago, there would be no fertilizer center, no fertilizer research.

I've made this point several times because I think it's significant. When I first came to Congress, I went to Vietnam to visit my Alabama troops. I went all over South Vietnam in that war, and I found Auburn University graduates all over South Vietnam teaching the Vietnamese how to use this new fertilizer that had been developed at this plant, making it possible for those poor people over there to have three rice crops a year rather than one. They had been for 2,000 years making one crop a year, and I thought that was very significant.

Frankly, I have been very impressed with what TVA has accomplished with the research on fertilizer, making our farmers the most productive and the best farmers in the world.

I was impressed with what I saw there, because I thought of how much more effective that is than our Foreign Aid Program. The Bible says, you know, to teach a person to fish is much better than to give him a fish, and that's what this fertilizer does. It teaches them how to produce more per land. The research you've done at that fertilizer plant has been tremendous, and the whole TVA operation has been great.

Mr. Myers asks those good questions, and I'm glad he does. I think he should. But he has been very supportive of the TVA.

Mr. MYERS. Mr. Chairman, if you'll yield? I note, Chairman Runyon, that it wasn't too many years ago that you attracted a big crowd when you came. Several TV cameras would always be in the room, and afterwards they would try to corner us saying, "Now, you said this, but didn't you really mean that?"

You were very controversial a few years ago, and they tried to get us between you, of course. Sometimes they were successful, but

I notice you didn't attract as big a crowd this time. So that's indicative also of the job you're doing.

Mr. RUNYON. It's the quality of crowd we attract.

Mr. MYERS. You attract quality now instead of quantity.

May I add to what the Chairman has already said about Director Dean? We do certainly wish you well and appreciate your contributions through the years. It's been a pleasure to have served with you. We hope we haven't been too hard on you, but just hard enough that everyone does a better job.

Mr. DEAN. You've been a lot of help, Mr. Myers. You really have. We've never come up here knowing you're here without trying to be prepared to answer financial questions.

Mr. MYERS. I'll put those in the record. All the boning up you did, I'm sorry, but you can put it in the record.

Mr. RUNYON. We like it better that way.

Mr. MYERS. I might add here that this is your last time to appear evidently, at least, at that table. We have a newcomer to our staff who is doing her first job here, Jeanne Wilson, who is quite understanding of this committee. We welcome Jeanne here and the job she's doing. We're glad to have you aboard, Jeanne.

Ms. WILSON. Thank you, sir.

Mr. BEVILL. You know, the word got around pretty fast that Mr. Myers, being a country banker, carries a calculator in his billfold. So when anybody quotes any figures before this panel, I notice they're very cautious about being accurate, because that calculator will come out and check on it.

Talking about making our farmers the best and most productive in the world, which TVA has played such a big role in, as I have said, the Japanese will not permit our agriculture products to come in over there. Do you know the reason? They can't be competitive. That's their answer. Isn't that interesting? Their farms average about five acres. Of course, they can't even come close to our farmers. We can produce food so cheap, we can ship it to Japan and still save the housewives a big percentage of the dollar that they pay for their food over there, but they won't let it come in.

I hope one of these days our President will make that point a little stronger. You know, President Reagan put an embargo that lasted about 30 days, I think. I'm hoping that we can get a little tougher on that.

Are there any other questions?

[No response.]

Mr. WATERS. Mr. Chairman, I know a lot of people may not believe this statement or think it's impossible, but our goal is to convince you people that we in TVA are operating the most efficient Governmental agency in the United States.

We don't expect to stop anywhere less than that. I know that some of our friends over on our side, Mr. Myers, will never believe that about TVA, but we intend to prove that, and I think we're well on the way.

Mr. BEVILL. I think you are, too. Do you have any percentage, John, of what your reduction in overhead was in the past year?

Mr. WATERS. We've reduced management——

Mr. BEVILL. Well, percentage of cost.

Mr. **Runyon**. We changed our management from 13 levels to eight. Our total reduction has been about 30 percent.

Mr. **Bevill**. You've reduced the overhead by 30 percent?

Mr. **Runyon**. Not only overhead, total manpower. We did reduce our overhead on the appropriated side by 30 percent.

Mr. **Waters**. We're going to try to get more money to the project, to the people, and keep it in house. It's difficult, but we made some progress. Let me tell you that we're not through with this thing.

Mr. **Myers**. Too often, Government programs are measured by how much money we appropriate and how much money we can spend. As I said earlier, I congratulate you on the job you've done. You've become lean and mean, and that's really what we have to do. I do thank all of you for that.

Mr. **Bevill**. That's a good note to end on right there. This subcommittee stands adjourned now until 10:00 tomorrow morning.

[The following questions and answers, written testimony, and the budget request document were provided for inclusion in the record:]

PROGRAM OVERVIEW

Mr. Bevill: The total TVA budget request for FY 1991 is significantly below the amount appropriated by Congress last year. What would be the primary effect of the proposed level for FY 1991?

Mr. Runyon: The President's budget of $91,302,000 is a 23 percent reduction from our 1990 appropriation of $119,306,000 following sequestration.

I testified earlier that we see an opportunity for TVA to renew its mission of helping improve the quality of life for the people we serve. To accomplish this we have identified five areas of concentration: providing environmental leadership; stimulating economic growth, maintaining a quality workforce and workplace at TVA, emphasizing service to customers and communities, and achieving excellence in nuclear power operations. This vision is not one attainable without the breadth of skills and activities in both our power and appropriations-financed programs.

The funding as proposed does provide increases in some areas of the budget, activities that support basic maintenance of TVA facilities. However, other major portions of program operations and research are significantly reduced or eliminated. The primary effect of this budget is to relegate our nonpower programs to that of a limited caretaker. This is as true of our fertilizer research as well as for our reservoir and resource development-related responsibilities. Important programs that encourage innovation and leadership, aggressive and cooperative economic growth, and development of the full potential of assets in TVA's trust, as well as the potential of the people and natural resources of the Valley, are greatly reduced.

PROGRAM OVERVIEW

Mr. Bevill: For the first time in 50 years, TVA is reviewing its lake management plan and has issued a draft environmental impact statement outlining some changes to the operation of the Tennessee River system. Could you share with the Committee some of these proposals and the possible impacts of such changes?

Mr. Runyon: In growing numbers, lake users have asked TVA to reexamine the tradeoffs involved in balancing environmental quality, hydroelectric power production, economic development, recreation, navigation, flood control, and other considerations affecting river system operations. Two principal changes in TVA's lake management policies are being considered:

1. Improving water quality throughout the Tennessee River system by providing increased minimum flows through TVA dams at critical times and locations, and installing aeration equipment at 16 dams to increase dissolved oxygen levels.

2. Supporting economic growth based on recreation and tourism by delaying summer drawdown on 10 tributary lakes until August 1.

Proposed minimum flows and aeration of releases would recover over 170 miles of aquatic habitat lost from intermittent drying of the river bed below TVA tributary dams. It also would improve dissolved oxygen levels in over 300 miles of river where water quality is now impaired in the late summer and fall by releases through TVA dams. This would improve recreational opportunities and aid riverfront communities in their development efforts.

Increased minimum flows would cost about $50,000 a year (the value of the hydropower production that would be lost). Aeration equipment would cost about $44 million to purchase and install, and about $3.3 million a year to maintain and operate.

Changes in TVA's lake level policies would produce economic, environmental, and navigation benefits. Holding tributary lake levels until August 1 would increase recreation visitation by about 18 percent, and make the affected reservoirs more attractive for residential development by improving their scenic beauty. It also would increase the survival rate of young fish by providing more food and cover, and improve navigation on the lower Ohio and Mississippi rivers by increasing water depths during their low flow period.

Holding lake levels until August 1 would require about 50 megawatts in replacement capacity, which could be constructed for about $37 million. Annual hydropower energy losses would vary with rainfall, averaging about $2.4 million a year (including the $50,000 energy loss for minimum flows). The proposed implementation strategy would assure that hydropower is available to respond to critical power system needs without significantly affecting lake levels.

PROGRAM OVERVIEW

Mr. Bevill: Earlier this year you refinanced a significant portion of TVA's long-term debt to achieve lower interest rates. What was the result of this? Have there been any adverse impacts?

Mr. Runyon: Refinancing TVA's high-interest debt through bond sales last year will save our customers $107 annually in interest payments. Combined with previously achieved annual savings of $40 million from our retirement of high interest bonds, our financial activities will save our customers nearly $150 million each year.

There have not been any adverse impacts on these actions. TVA has a commitment from the Federal Financing Bank that gives it continued access to the FFB for short-term borrowing over the next two years. In the long term, we don't anticipate the need for large additional capital requirements other than these associated with refinancing. And that assessment takes into account the impact of anticipated acid rain legislation.

PROGRAM OVERVIEW

Mr. Bevill: Please identify, by type, the net generation of electricity estimated by year for FY 1990-1995.

Mr. Runyon: The following table responds to your question:

Net Generation

	Fiscal Year (Millions of kWh)					
	90	91	92	93	94	95
Hydro	18,088	16,214	16,300	16,200	16,100	16,100
Fossil*	85,692	84,745	84,000	89,000	86,600	84,700
Nuclear	17,030	22,346	27,000	25,300	32,500	39,200
Generation	120,810	123,305	127,300	130,500	135,200	140,000
Interchange Transmission Loss & Others	-1,900	-900	-2,200	-1,600	-2,200	-2,900
Net Generation	118,910	122,405	125,100	128,900	133,000	137,100

*Includes Combustion Turbine

PROGRAM OVERVIEW

Mr. Bevill:	What is the current operational status of TVA's nuclear reactors? What is the anticipated startup schedule for any non-operational reactors and what activities are scheduled to bring them on-line?
Mr. Runyon:	Unit 1 at Sequoyah is preparing for its fourth refueling outage scheduled to begin March 16, 1990. Unit 2 is currently operating at full power.

At Browns Ferry, Unit 2 is scheduled for restart later this summer, followed by Unit 1 at Watts Bar early in fiscal 1992, Unit 3 at Browns Ferry in January 1993, Unit 2 at Watts Bar later in 1993, Unit 1 at Browns Ferry in January 1995 and Bellefonte to be determined.

At Browns Ferry and Watts Bar we are working very closely with the NRC to resolve outstanding regulatory concerns. We are currently implementing several corrective action programs at each of the sites which are vital to our restart and startup efforts.

PROGRAM OVERVIEW

Mr. Bevill: How would you characterize the success you have had to date in bringing non-operating nuclear reactors back on-line?

Mr. Runyon: Our turnaround from shutdown in 1985 to record-breaking production in 1989 at Sequoyah reflects our commitment to performance excellence. The lessons learned from our efforts at Sequoyah are being applied at Browns Ferry and Watts Bar. Nuclear Power continues to make significant improvements in almost every aspect of its day to day operations. These improvements along with putting in place a seasoned nuclear power team at each site will go a long way in assuring continued success.

PROGRAM OVERVIEW

Mr. Bevill: The Committee is aware that TVA has not had a rate increase in the past two years. However, the additional costs incurred bringing the non-operational reactors on-line and the effects of the proposed clean air legislation will certainly impact rates. Please derive the anticipated impacts of these factors plus any others which may impact future rates.

Mr. Runyon: The actual cost increase which would result from acid rain legislation would not necessarily result in a corresponding increase in TVA's rates. The capital costs which range from $1.5 to $2 billion and the operating costs which range from $600 million to $850 million will be phased in over time and TVA will take all actions possible to minimize the impacts to our ratepayers of this increased cost through savings elsewhere. Estimates to date have been for comparative purposes only, and the actual compliance costs could vary depending on the final strategy selected and the specifics of the legislation which is enacted.

Most of the recent acid rain proposals include a 2-phase compliance program. Phase 1 compliance is usually required in the mid 1990's and Phase 2 around the year 2000. Some increases in costs would begin in the mid 1990's as modifications are being completed and the affected plants start complying with the Phase 1 requirements. Most costs, however, would not begin until actual compliance with both phases of the legislation.

TVA will take every possible action to reduce the cost of compliance with acid rain legislation. This will primarily be done by ensuring that reliable and cost effective control measures are used to reduce emissions. Although TVA would likely depend primarily on coal switching at some plants and the installation of scrubbers at other plants for compliance, other measures such as increased conservation efforts are included as measures for reducing future generating costs.

We will also carefully examine the impacts of bringing Nuclear unites on-line. As you know, TVA's current goals include maintaining constant rates at least though fiscal year 1992. Throughout any rate freeze period, increased productivity and improvements to the power generating system plus reductions in interest expense derived from debt refinancing activities will help reduce impacts.

PROGRAM OVERVIEW

Mr. Bevill: Mr. Chairman, you have indicated that you will be concentrating in the 1990's on providing environmental leadership. What do you see as TVA's role in this area? How will you ensure that TVA's activities draw upon experiences and research already available from other Federal, State or local agencies and the private sector?

Mr. Runyon: TVA has a two-fold environmental leadership role. The first involves leading by example--compliance with environmental laws and regulations in producing power and fertilizer, operating the reservoir system, and conducting other programs is just the beginning. Of equal importance are additional environmental protection, cleanup, research, and enhancement actions that are integral to excellence in energy production and resource development. For example, we are improving water quality by increasing stream flows and raising the oxygen content of water released from our dams. Moreover, the lake improvement plan now under consideration represents the first major review of the operation of the Tennessee River and reservoir system in 50 years and, depending on the recommendations implemented, could fundamentally change some operations. TVA has been an innovator in developing pollution-control and clean-coal technologies. As one of the Nation's largest coal consumers, TVA is in a unique position to exercise leadership in achieving the objectives of the pending Clean Air Act Amendments while still maintaining our commitment to be the most competitive electric utility in North America.

The second aspect of TVA environmental leadership builds on the first, but extends beyond its facility and system operations to its regional and national outreach and demonstration programs. For example, the recent change in the name of the National Fertilizer Development Center to the National Fertilizer & Environmental Research Center reflects a change in program emphasis that focuses on such areas as the introduction of new technologies and practices to help the fertilizer and agricultural chemical industry reduce its impacts on the environment. TVA is developing technology to convert organic (plant-derived) wastes from municipal garbage into fuels and chemicals, thus producing useful products and reducing the need for landfills. We are also demonstrating low-cost waste treatment technology such as constructed wetlands as alternatives to conventional treatment systems for municipal and industrialapplications, and are exploring the possibility of establishing a facility for converting refuse-derived fuel to energy. Activities such as these evidence environmental leadership by demonstrating innovative solutions to problems and by helping to meet environmental challenges facing both the Tennessee Valley region and the Nation.

Agency activities are conducted not only to draw upon the experiences and research available from other agencies and the private sector, but to work cooperatively with them whenever possible. For example, the Land and Water 201 national demonstration in soil and water conservation is a united effort among the Valley States, the U.S. Department of Agriculture, the U.S. Environmental Protection Agency, and TVA.

Since the 1980s TVA has been actively addressing the cooperative reclamation of almost 3,000 acres of noncoal abandoned mine land with local, State, and Federal agencies, landowners, and industry. The new environmental emphasis at the National Fertilizer & Environmental Research Center is an outgrowth of TVA participation in a national private-sector fertilizer and chemical industry group.

The atmospheric fluidized bed combustion demonstration unit currently pioneering advanced clean-coal technology at our Shawnee plant is a joint effort among the Electric Power Research Institute, the Commonwealth of Kentucky, TVA, and other utilities and coal companies. Through projects such as this, as well as both formal and informal cooperative agreements with various agencies, organizations, and industry groups, we ensure that TVA keeps current, exchanges information, takes full advantage of technology transfer, avoids duplication, and capitalizes on opportunities to combine resources to address environmental problems.

PROGRAM OVERVIEW

Mr. Bevill: What impacts on TVA can be expected from the proposed clean air legislation?

Mr. Runyon: We estimate that the clean air legislation will result in capital costs ranging from $1.5 to $2 billion depending on the final shape of the legislation. Operating and maintenance costs are expected to range from $600 million to $850 million annually. The costs will be phased in over time, beginning in the mid 1990's.

PROGRAM OVERVIEW

Mr. Bevill: As you have reviewed TVA's activities, have you identified any areas where TVA is involved in programs which do not reasonably fall within the framework of TVA's overall mission?

Mr. Runyon: No. The region and the Nation have benefited from the expansiveness of TVA's mission. However, we recognize that places a special responsibility on TVA to ensure that it does not duplicate the tasks or objectives of others. Identifying an appropriate focus for TVA's programs and avoiding any duplication were basic components of a previous internal review of TVA appropriated activities. The results of that reevaluation is the basis of the five functional areas around which our 1991 budget was developed.

PROGRAM OVERVIEW

Mr. Bevill: What is the status of the Atmospheric Fluidized Bed Combustion Demonstration facility at Paducah, Kentucky? What have you learned from this demonstration?

Mr. Runyon. Detailed design of the boiler and balance of plant is finished. Site preparation activities and erection of the facility, which began in February 1986, was essentially completed in July 1988. Steam-to-turbine was achieved in October 1988. Modifications of the coal preparation system (addition of screens), the coal-feed system (mass-flow enhancements), and the waste disposal system (high-pressure blowers) are underway in order to resolve problems encountered during early plant operation. Commercial plant operation is scheduled for June 1990. The parametric testing, started in November 1989, will be completed in mid-1991 and will be followed by two years of long-term demonstration runs on economic dispatch. Overall, the demonstration plant has now operated nearly 5240 hours and has produced slightly over 426,000-MWh (gross) through February 26, 1990.

Preliminary analysis of the plant's environmental emissions and carbon utilization is as expected from results of the 20-MWe AFBC Pilot Plant. For high-sulfur coal, approximately 5%, SO_2 capture of 90% is achievable. NO_x emissions are running .2 to .3 lbm/MBtu (.6 lb/MBtu is the standard) and carbon utilization of 97% is being achieved (once the plant problems are resolved, the carbon utilization should be close to 99%). For commercial plants, improvements in coal preparation and coal feeding is needed before full acceptance is achievable. For future plants particular attention needs to be paid to the scaleup of the design parameters, such as heat transfer.

PROGRAM OVERVIEW

Mr. Bevill: Can you update the Committee on the activities of the Inspector General?

Mr. Runyon: TVA established the OIG during October 1985 and appointed Norman A. Zigrossi as Inspector General during January 1986. Since its inception, the OIG has helped TVA operate more effectively.

The OIG currently has an employment ceiling of 155 positions, including 66 positions in Audit Operations and 47 positions in Investigative Operations. The OIG's fiscal year 1990 budget is $8.9 million.

Since its inception, the OIG has successfully completed audits and investigations on a wide range of subjects. Some of the more significant of these audit and investigative activities are described below.

The OIG has issued 193 audit reports. TVA has realized savings of more than $88 million and put $100 million to better use as a result of recommendations from 150 of these audits. Some of our more significant audits are outlined below.

The OIG audited the revenue from energy sales and recommended a change to TVA's accounting policies to recognize unbilled electricity sales. By implementing this recommendation, TVA realized about $92 million by reducing TVA's need for future revenues.

Another OIG audit questioned more than $3.5 million in charges for mining operations at TVA's Camp Breckinridge properties. Subsequently, the contractor refunded about $2 million to TVA.

TVA has avoided more than $3.3 million based on OIG preaward audits of proposed extensions of Nuclear Power contracts.

An audit of certain aspects of TVA's payroll costs identified several opportunities for savings, including potential annual savings of $6.2 million for ratepayers and $8.7 million for TVA employees, if TVA paid all of its employees' health insurance costs and contributions to the retirement system and reduced employees' salaries by a like amount.

Since 1986, the OIG has provided litigation support services in 11 lawsuits in which the OIG questioned $42 million of $68 million claimed. TVA ultimately avoided over $57 million of these claimed costs.

The OIG has also completed more than 2865 investigations and issued 1009 formal investigative reports to management. The OIG referred 456 matters to U.S. Attorneys and state district attorneys for possible prosecution and obtained 47 convictions. As a result of OIG investigations, TVA management has taken 563 personnel actions against employees ranging from oral warnings to termination. Some of the OIG's more significant investigations are outlined below.

The OIG's initial review of per diem payments and related travel costs under various TVA Nuclear Power contracts revealed that between April 1987 and February 1989 TVA reimbursed these contractors for an estimated $4,313,000 in questionable per diem and related travel payments. Based on information developed during OIG interviews of more than 650 contractor employees, the OIG and TVA's General Counsel's office determined that over 290 individuals received payments to which they were not entitled.

The OIG has completed 143 cases involving allegations that current or former TVA employees were improperly receiving disability benefits under the Federal Employees' Compensation Act (FECA). As a result of the OIG's investigations, the United States Department of Labor, Office of Workers' Compensation Programs, has declared overpayments totalling over $974,000 and reduced and/or terminated benefits in other cases. The elimination of benefits has reduced TVA's annual costs under the FECA program by over $193,900 and TVA's long-term costs by $6.6 million. We currently have 135 open cases in this area.

The OIG identified over 40 employees who were involved in a scheme to submit fraudulent travel vouchers to TVA. These employees inflated their requests for travel reimbursement by submitting fraudulent lodging receipts to TVA. Thirty-two of these employees were convicted and received sentences ranging from three to twenty-four months' probation, and they were required to make restitution to TVA of more than $100,000.

An OIG review revealed that, during 1987, TVA paid its salary policy employees almost $60 million in overtime. The review revealed, among other things, that 545 employees were paid an average of $20,000 each in overtime. Subsequently, TVA reduced its Power and Nuclear Power budget for overtime by $33 million.

The OIG investigated alleged drug use by TVA nuclear plant employees. During our investigation, 28 employees who were suspected of drug use were tested for marijuana, cocaine, or amphetamines. The results of these tests indicated drug use by a significant number of those tested. Some of these employees subsequently sued the Inspector General, other senior TVA officials, and OIG investigators for alleged violations of their constitutional rights. The United States Court of Appeals for the Sixth Circuit subsequently affirmed a federal district court's ruling that the OIG's investigation of alleged drug use by the nuclear plant employees was entirely appropriate.

FY 1991 BUDGET REQUEST

Mr. Bevill: What, in general terms, would be the impact on the Tennessee Valley region if the TVA budget remained at the recommended level?

Mr. Runyon: The proposed level of funding defines TVA in the narrowest context rather than the multiple objectives of TVA's origins, the diverse benefits of past programs, or the five basic functions that TVA has defined to meet future needs of the Valley region, as well as its national role.

Stewardship activities will again receive increased support under the President's proposed budget for 1991. These activities provide critical support to the underpinnings of the considerable Federal investments in TVA's dams, reservoirs, recreation and visitor facilities, lands, and associated natural resources. Funds for 1991 will increase TVA's capacity to carryout necessary annual maintenance, periodic maintenance and rehabilitation, devise and implement resource management plans for TVA lands and associated wildlife, monitor reservoir water quality, and continue with demolition and cleanup of abandoned fertilizer facilities.

However, even within the Stewardship function, the increased funding will not permit TVA to fully carry out the orderly, five-year objective to correct problems resulting from underfunding in past years. The goal of bringing these basic TVA services and facilities to a level comparable to general Federal standards will still not be reached, and important activities such as improvements to the navigation channel below Pickwick Lock are deferred.

Water and Land functions will suspend current economic and preliminary engineering evaluations for possible replacement of upper Tennessee River locks. Cooperative correction and protection of groundwater resources will be eliminated, improvements to the quality of water released from TVA dams will be reduced, and cooperative efforts to address ozone problems in the region and assessments of selected pollutants in air-to-water impacts will be eliminated. Also eliminated are TVA's nationally- recognized environmental education activities and forest industry development functions.

The proposed budget presumes that The Land Between The Lakes will double income, from $1.5 million in 1990 to more than $3.0 million in 1991, or close visitor attractions such as The Home Place 1850, environmental education facilities, visitor information services, and campground interpretive programs. The budget also eliminates research, demonstration, and training activities carried out in cooperation with other Federal, private, and State agencies.

All Rural Development activities are eliminated. These activities are focused on resolving the problems of entrenched economic inequity that persist in many rural areas of the Valley region. TVA activities are designed to complement State and local efforts by emphasizing rural development, local home-grown businesses, comprehensiveness, basic problems and long-term solutions, partnerships with State, and local governments, shared funding, and communities naturally existing advantages.

Activities of the National Fertilizer & Environmental Research Center will be curtailed. This includes research targeted at improving the nutrient efficiency of fertilizers; improved production, storage, and handling technology; and field testing and other introduction activities associated with new or alternative fertilizers. Redirected research focusing on problems identified with the environmental consequences of fertilizer use is eliminated. The last phases of research and development on technologies to produce alcohol from widely available hardwoods and other cellulosic feedstocks is terminated. This will also eliminate the redirection of biomass technology research aimed at helping solve municipal solid waste problems.

FY 1991 BUDGET REQUEST

Mr. Bevill: What level of funding did TVA request from OMB? Was your request to OMB sufficient to meet the needs of the Valley?

Mr. Runyon: TVA's fiscal year 1991 appropriations request to OMB was $142.380 million. This total, which is $21.380 million above the 1990 appropriation of $121 million (before sequestration), provided support to all functions of Stewardship, Water and Land, Land Between The Lakes (LBL), Rural Development, and National Fertilizer Development Center (NFDC) at the current services level, including a 4.5 percent allowance for inflation.

The estimate also included funding for the following: (1) correction of outstanding problems associated with TVA achieving the proper level of stewardship at facilities, (2) continuation of the TVA/Army Corps of Engineers aquatic weed management project on Guntersville reservoir, and (3) continuation of the necessary economic and engineering evaluations for building new navigation locks at Chickamauga and Watts Bar Dams. All of these activities were begun in 1990.

The 1991 estimate of $142.380 million also included funding for a limited number of activities where TVA can make timely contributions to the region and to the Nation. These activities included channel improvements below Pickwick Dam, reducing environmental problems from agricultural chemicals, addressing specific rural and minority barriers, developing a regional model assessing climate change, implementing capital improvements at LBL, and reducing the problems of erosion and water quality that arise from abandoned noncoal mine lands. We are convinced that studying these proposals in greater detail would confirm their benefits.

These proposals would not meet all the needs of the Valley, but they do represent responsible action to address many important problems.

FY 1991 BUDGET REQUEST

Mr. Bevill:	In what areas could additional funds be effectively utilized?
Mr. Runyon:	Since 1988 TVA has conducted an intensive review of its resource development programs, examining needs and priorities in light of TVA's mission and current budget realities. This review led to the redefinition of TVA's appropriated responsibilities into five functional areas. These functions of Stewardship, Water and Land, Land Between The Lakes, Rural Development, and National Fertilizer & Environmental Research Center each encompass important responsibilities and contributions to the Valley region and to the Nation. Should additional funds be made available to TVA, we have identified needs and opportunities within each function that can effectively make use of added resources.

FY 1991 BUDGET REQUEST

Mr. Bevill:	How would the reduced funding level impact the Tennessee Valley Authority? How many TVA employees would be lost? How many other jobs will be affected?
Mr. Runyon:	We estimate TVA's appropriated-financed employment would be reduced by at least 300 employees from current levels. In addition, many of the programs eliminated or reduced have creation of private sector jobs as a primary objective. We have estimated that these programs where TVA serves as a critical element in the job creation process would affect 10,300 projected new private sector jobs. It will also eliminate assistance leading to training or retraining of more than 17,000 persons in contemporary job skills.

FY 1991 BUDGET REQUEST

Mr. Bevill: What would be the effect of these reductions five or ten years down the road? What is the long-term impact on the region?

Mr. Runyon: The reductions in the President's budget from FY 1990 budget levels will have important consequences for each of the functional areas affected.

Water and Land activities are targeted at improving the quality and productivity of Valley natural resources. These reductions will result in less attention and action to remedy water quality problems and increased property losses from flooding in some tributary zones. We will not be able to maintain the navigation system at standards consistent with the operating requirements of modern-day shipping. We also project less economic use of Valley hardwoods and less effective use of reservoir recreation potential.

Land Between The Lakes' basic mission would be compromised at this level. The direction established by the budget will reduce the capability of LBL to that of a limited recreation area. Interpretative services common to other Federal recreation areas will be absent, as will be the national demonstration or other unique aspects of LBL. The number of annual visits can be expected to drop, although the cost of maintaining roads and other general purpose facilities on the 170 thousand acre site will not decline.

The significance of the elimination of Rural Development initiatives will only increase with time. Ignoring the economic problems of poorer rural areas will result in a new migration to urban areas where these new residents will be even less prepared to compete for jobs and will create new and additional economic problems. The long-term effects will become devastating to the economy of the region and a drain on local, State, and Federal governments and the private sector.

The National Fertilizer & Environmental Research Center has just initiated an important realignment of its work. Reductions established in the President's budget will make it infeasible to continue existing demonstration-scale facilities or fully convert to prototype fertilizer production facilities. Of equal significance will the abandonment of research specifically targeted at creating an industry-wide capability in more environmentally sensitive fertilizers and reductions to nonsource point pollution from farming operations.

FY 1991 BUDGET REQUEST

Mr. Bevill: What has been the reaction of the people of the Tennessee Valley region to these recommendations?

Mr. Runyon: The people of the Tennessee Valley region have expressed concern over this threat to continuation of TVA programs. Many of these programs are based on direct partnerships with the people and directly impact the region's quality of life.

FY 1991 BUDGET REQUEST

Mr. Bevill: Have you seen a national response to the proposed budget cuts?

Mr. Runyon: Yes. We have heard from organizations from across the Valley and the Nation offering their support for TVA. This has been done through letters, resolutions, and other means.

FY 1991 BUDGET REQUEST

Mr. Bevill: Aside from the power program, what fees or revenues will TVA collect in FY 1990 and FY 1991?

Mr. Runyon: The following table provides the information requested:

Fee Source	Estimate ($000) 1990	Estimate ($000) 1991
Stewardship operations...........	1,155	1,172
Water and Land operations........	200	200
Land Between The Lakes...........	1,577	450
National fertilizer research and development (sale of fertilizer)	15,050	4,938
Reimbursable services............	40,459	31,993
Sale of retired plant and miscellaneous receipts.........	4,952	4,485
Total........................	63,483	43,238

FY 1991 BUDGET REQUEST

Mr. Bevill: What efforts has TVA made to increase revenues in the past several years?

Mr. Runyon: TVA has implemented several actions to increase revenues. Income from new user fees and existing ones have grown by more than three fold at Land Between The Lakes and reservoir public facilities since FY 1981. In FY 1990 these revenues equal almost 22 percent of the LBL operating budget; however, income will be reduced significantly in FY 1990 with the projected closing of several facilities. Campgrounds on TVA reservoirs have also increased fee revenues since FY 1981.

At the National Fertilizer & Environmental Research Center (NFERC), TVA is implementing a new patent/license policy that charges for use of NFERC technology. Programs are being conducted to market technical services to fertilizer companies that provide them exclusive benefits, and environmental site assessments are conducted on a fee basis for fertilizer companies across the country. NFERC is also charging the private sector for publications and for services that were previously provided at no cost. TVA expects to generate about $1.6 million in private sector funding in FY 1990.

ECONOMIC AND RURAL DEVELOPMENT

Mr. Bevill: Mr. Chairman, again for FY 1991, the budget request for Rural Development has been eliminated. Describe TVA's current economic and rural development programs, the rationale for them, and their impact on the region.

Mr. Runyon: Congress made economic development an integral part of the basic TVA assignment. The TVA Act charges the agency with this responsibility in three different sections:

- Section 15d(h) directed the new agency to accept "its responsibility for the advancement of the...physical, social, and economic development [emphasis added] of the area...."
- Section 22 called for TVA "To aid further the proper use, conservation, and development of the natural resources of the Tennessee River drainage basis...and to provide for the general welfare of the citizens...all for the general purpose of fostering an orderly and proper physical, economic, and social development" of the region.
- And Section 23 noted in part that one of the overriding aims of the Act was to be obtained through adherence to "the economic and social well-being of the people."

The focus and strategy to meet these expectations evolves with the changing needs of the region, but the goals remain the same: promote and support environmentally sound economic growth for all segments of the Valley's population, working with public and private partners to identify opportunities, remove barriers, and demonstrate innovative development strategies for public benefit.

The Valley's historical strategy of recruiting manufacturing branch plants has been very successful but holds less promise for the future. Area development officials are beginning to recognize that a shift toward an home-grown growth strategy with more emphasis on nonmanufacturing industry is likely to be the key to future economic gains. The Valley Resource Center, which houses TVA's rural economic development programs, has developed innovative programs which demonstrate to others how such endogenous growth can be captured.

TVA economic development programs are primarily complementary to State and local development programs. Since the State and local incentive programs are focused on industrial recruiting, TVA's nonpower programs, which are directed at achieving sustainable economic development in a broad sense, fill what would otherwise be an obvious void. TVA programs are designed to emphasize:

- o rural development
- o local home-grown businesses
- o comprehensiveness
- o basic problems and long-term solutions
- o partnerships with State and local government units
- o resource leveraging (shared funding)
- o natural comparative advantage

TVA's development strategy for the 1990's and beyond is its role as an economic development laboratory for both the Nation and the Valley. This strategy rests on actively assisting in development innovation, demonstrating the practicality of promising new programs, and disseminating development information to those who can use it.

The Valley Resource Center is structured to carry out those tasks and is organized to by the following functions.

Economic Analysis and Evaluation--understands and interprets how the Valley's economy works and strives to know its past, monitor its present, and predict its future.

Natural Resources Department--seeks opportunities for increasing the contribution of agriculture to the region's economic growth and works to demonstrate solutions to waste management problems that may pose barriers to environmentally sound economic development.

Skills Development Department--encourages extensive public and private partnerships at the local, regional, and national levels which can address and improve current and future work force deficiencies. Program efforts take the form of innovative prototype training demonstrations which are targeted toward economic development issues. Successful models are replicated at other sites in the Valley and project outcomes are distributed to educational institutions, state agencies, economic development organizations, and policy information groups throughout the Nation.

Community Growth and Jobs--pursues economic development of the Valley and its residents by organizing communities to achieve economic development goals, by creating and retaining jobs in the service and manufacturing sectors, and by providing support for job creation in economically distressed counties.

ECONOMIC AND RURAL DEVELOPMENT

Mr. Bevill: What would be the impact of the elimination of the economic development program as proposed in the FY 1991 budget?

Mr. Runyon: The loss would be disproportionately greater than the funds allocated for TVA's rural development program. TVA consciously seeks to use allocated resources for economic development to leverage funds from other private and public sources. At the same time, special emphasis is placed on working with local, State, and other Federal programs and with private sources to find special opportunities for economic stimulation and economic growth. In this way, cooperative economic development projects are undertaken that could not be successfully completed by a single entity. The economic development partnerships in which TVA participate in the region accomplish far more together by sharing costs and pooling technical and human resources than these participating partners could accomplish working alone.

Eliminating TVA's rural development program would, in turn, eliminate a critical way of contributing to improvement in the region's economy. This would eliminate opportunities for job creation in various segments of the economy and building basic employee skills. It would be particularly felt in the rural areas of the Valley where agriculture is still a mainstay of the economy and where waste management problems pose special constraints to local government.

ECONOMIC AND RURAL DEVELOPMENT

Mr. Bevill: Are other Federal, State, or local government programs available that could substitute for TVA's programs?

Mr. Runyon: In 1933 Congress presented TVA with a very challenging assignment: The TVA Act charged the 7-state regional resource development agency "To provide for the general welfare of the citizens...for the general purpose of fostering an orderly and proper physical, economic, and social development of said area."

Whereas other Federal, State and local government programs focus on particular problems or constituencies (e.g., air pollution, zoning, unemployment, or education), TVA was challenged to address and confront a wide variety of problems, to understand the interrelatedness of those problems, and to apply a multidisciplinary approach in devising a range of particular solutions. The problems were and remain to be found in a wide range of areas: the region's forest, rivers, farmlands, cities, classrooms, and factories.

The fundamental difference between TVA and other government agencies lies in the way in which TVA carries out its responsibilities and in the extensive array of internal capabilities assembled to implement its programs. TVA tries to work at the margin where, although it cannot single-handedly achieve the intended goals, it is a necessary catalyst to produce results. For example, TVA's economic development-related activities are not carried out. They involve coordination and cooperation with local, State, and Federal agencies and representatives from the private sector, with significant guidance from the general public. This approach avoids duplication of efforts while confronting a wide array of problems, and it gets things done with the most efficient use of limited resources.

ECONOMIC AND RURAL DEVELOPMENT

Mr. Bevill: How do these economic development programs create jobs, enhance the tax base, or help alleviate problems in the region?

Mr. Runyon: Helping improve the standard of living for residents of the Tennessee Valley is one of TVA's fundamental objectives. When new jobs are created in the region, the tax base is improved and the region's people are employed and not receiving Federal transfer payments.

If the Tennessee Valley is to attain an economic parity with that of the Nation, steps must continue to be taken to overcome stubborn regional obstacles. TVA's job creation programs and demonstrations are aimed at working with the various sectors of the economy to provide specialized technical assistance based on particular local needs.

For example, TVA's manufacturing development program helped create more than 7,200 new jobs for Valley workers in 1989 by assisting more than 250 existing firms in realizing their expansion plans. TVA provided more than 500 technical services to these firms last year alone.

Firms selected for participation in this program typically do not have sufficient staff or expertise to provide needed research and information and therefore benefit the most from TVA's assistance in areas such as engineering assessments, management services, market research, transportation rate analysis, forest product development, and a variety of environmentally-related control services.

The manufacturing development program also provided 130 economic development support services to 80 regional and local economic development organizations this past year. These services included industrial park design plans, industrial site evaluations, transportation studies, floodplain site analysis, and other support services. These were long-term economic development investments, and we have no way of knowing immediately how many new jobs will be created by these activities.

ECONOMIC AND RURAL DEVELOPMENT

Mr. Bevill: Please provide a list and description of all economic development projects and activities performed in FY 1989 and proposed in FY 1990.

Mr. Runyon: Listed below are the primary economic development activities for fiscal years 1989 and 1990 that we have directed in meeting the critical needs of the region. The President's budget provides no funds to continue this work in 1991; however, planning estimates for 1991 reflect TVA's program capability for these activities.

Manufacturing Development - The Manufacturing Development Program represents an agency-wide integrated approach to strengthen the competitive advantage of the region's manufacturing sector. There are two basic avenues to increase and/or maintain the manufacturing base. These are the expansion and retention of existing manufacturers and the addition of new manufacturers. These efforts to support the expansion and retention of the region's manufacturing base are divided into four components: Existing Industries Program, Economic Development Support Services, International Trade, and Tennessee-Tombigbee Waterway Development.

In fiscal year 1989, technical assistance was provided to 250 expanding firms, helping create approximately 7,200 new jobs. More than 500 technical services were provided to these firms. In both fiscal year 1990 and 1991 it is projected that similar technical services will be provided to 250 manufacturers that will create more than 7,200 jobs.

In fiscal year 1989, the Manufacturing Development Program also provided 130 economic development services to 80 regional and local economic development organizations. These services included industrial park preliminary design plans, industrial site evaluations, transportation studies, floodplain site analyses, and other support services. These were long-term economic development investments, and we have no way of knowing immediately how many new jobs will be created by these activities. Similar services can be provided to 80 economic development organizations in 1990 and 1991.

In fiscal year 1989, Manufacturing Development staff worked with the Tennessee-Tombigbee Waterway Development Council (Council) to plan a targeted strategy for economic development of the waterway corridor. Activities included analyzing selected industry groups to determine those with greatest growth potential suitable for locating in the area; identifying, analyzing, and promoting large industrial sites for a portion of the Tennessee-Tombigbee Waterway; identifying new markets or market niches created by the availability of cheaper barge transportation or other changes. In fiscal years 1990 and 1991 staff will continue to work with the Council to develop and implement plans to promote economic growth in the area. Program staff is also working with other TVA programs to develop an agency-wide integrated approach and coordinate efforts to enhance the economic growth of the Tennessee-Tombigbee region.

In fiscal year 1989, Manufacturing Development staff provided group training and one-on-one consultation to approximately 40 manufactures of hardwood lumber throughout the Valley. Staff arranged visits to Valley mills for agents and importers from Italy, Spain, Belgium, England, Germany, China, Japan, and Taiwan. Program staff traveled to Japan, Taiwan, and Hong Kong, and visited over 40 importers and end-users in an effort to identify marketing opportunities for Valley producers. Staff accompanied four mill representatives on a sales trip to England and Germany to meet with agents and importers. Mills participating in the program estimated that they exported 639 containers of lumber valued at approximately $11 million in Fiscal Year 1989 as a direct result of assistance by TVA's International Trade staff.

In fiscal year 1990, program staff continues to provide training sessions and one-on-one consultation with manufacturers of hardwood lumber products. As a result of the fiscal year 1989 market development trip, a sales trip with several mill representatives to Japan, Taiwan, and Thailand will take place. In the first quarter of fiscal year 1990, program staff hosted visits by several importers and trading company representatives. Also in fiscal year 1990, research is underway to identify other products manufactured in the Valley and/or targeted geographic areas which may warrant an export trade effort.

Community Resource Development--The Community Resource Development Program helps community leaders use their resources more effectively to create jobs and improve local competitiveness for future economic growth. In fiscal year 1989 the program assisted leaders in 18 Valley counties or multicounty regions in preparing economic development strategies to guide future growth. Some 20 job creation projects were packaged which aided in the creation of more than 2,000 new jobs in poor rural counties. Some 2,900 local leaders also participated in informational and training meetings/sessions aimed at enhancing their economic development skills.

This program also administers a national technology transfer project with the National Rural Electric Cooperative Association and is implementing a model leadership development program for the southeast in cooperation with the Southern Growth Policies Board. We anticipate preparing economic development strategies for 20 rural counties and the packaging of 15 job creation projects in both 1990 and 1991, as well as continued implementation of the new leadership development program. Jobs created should exceed 1,500 each year.

Service Sector Development--The TVA region lags behind the Nation in development of the service sector--wholesale, retail, business and professional services, and health services. An estimated 90-95 percent of new jobs are being created in the Nation's service sector. To help local communities diversify their economies, TVA's Service Sector Development Program identifies business opportunities in the service sector, utilizing a sophisticated local market analysis. The program offers business development training to new and existing rural entrepreneurs, and provides technical assistance to help local communities recruit new service sector businesses and companies. Technical assistance is also provided in the development of business incubators. Since its initiation in fiscal year 1988, the Service Sector Development Program assisted local communities in creating 500-550 new jobs and 50-60 new businesses each year. Six communities are accepted for assistance each year.

In addition, a mobile business development center, sponsored in cooperation with the Small Business Administration, visited 12 rural communities in Tennessee in fiscal year 1989 and will visit 16 communities in Tennessee, Alabama, and Mississippi in fiscal year 1990. The mobile center is a focus of Business Development Week, which also includes a variety of business development workshops in cooperation with other local, State, and Federal businesses and agencies. The mobile center features business development videos, individual counseling sessions, and training through an interactive video laserdisc program.

Special Opportunities Counties (SOC) - This program is designed to help the Valley's most economically depressed areas, and has helped attract hundreds of new jobs and millions of dollars in investment to the Valley. In 1989 almost 2,000 new jobs were created in 29 of the poorest Valley counties. For example, the program helped attract more than 300 jobs to a county with 14 percent of its residents unemployed and 27 percent living below the poverty level. This effort allowed people to leave unemployment and government assistance rolls to join the payrolls of companies and contribute to the economic prosperity of their communities.

The SOC loan program focuses special emphasis on the poorer, less-developed areas of the region. The program supports projects that create jobs and enhance per capita income.

We anticipate that 1,000 to 1,500 new jobs will be created in fiscal year 1990 and fiscal year 1991 respectively. The strategies taken to achieve local job creation vary from county to county, depending on local needs, resources, and capabilities.

Skills Development - TVA's Skills Development efforts focus on addressing and improving literacy and job skills for the current and future work force through partnership demonstrations in high technology training, industry- specific training, basic skills enhancement, and dislocated worker retraining.

In fiscal year 1989, these efforts resulted in over 20,000 people being trained with an average wage of $8.00 an hour and education and training assistance being provided to the 7 Valley States and 11 states outside of the Valley region; over 30 economic development agencies; 200 new, expanding, or existing industries; and 81 educational institutions. These results were accomplished through education/training programs in laser optics, microelectronics, robotics, computer-managed interactive video, laser videodisc, youth career training, and customized industrial training projects.

In fiscal year 1990, efforts are focused on the development of customized training/retraining for at least 13,500 unemployed and underemployed rural residents through cost-sharing arrangements with 40 new and expanding industries, State agencies, and local communities; development and implementation of laserdisc interactive, computer-aided instruction, to enhance the educational capabilities of small rural schools as a means of aiding economic development in rural areas; training in automated manufacturing and other advanced industrial processes to help small and medium size industries in rural areas stay abreast of technical changes and train/retrain employees in new techniques.

In fiscal year 1991, the focus of this programmatic area would involve two major thrusts: education and skills development. The education component would address the issues and deficiencies of public education by working with national, State, and local educational agencies and private industry in researching issues in educations, demonstrating new approaches to educational improvement, evaluating, and developing prototype models that can influence educational policy. An emphasis would be placed on subject mastery in the basic education, state-of-the-art instructional delivery systems (e.g., laserdisc, telecommunications, computer-assisted instruction), improving community educational opportunities, literacy training, teacher/administrators training, developing of public/private partnerships, and career awareness activities.

The Skills component would address the shortage of skilled technical workers in the Valley by working with postsecondary institutions, particularly two-year community colleges. The program would focus on utilizing TVA-sponsored advanced technology centers to link Valley schools into a "state-of-the-art" technological network. Emphasis will be placed on upgrading technical instructors; curricula development; lab layout and design; and writing equipment specifications. Included are tech-prep high school to community college coordination efforts (2+2), university joint-venture partnerships, and Valley-wide continuing education initiatives. The goal is to increase the supply and improve the quality of technical workers by 1995.

Waste Technology - This program identifies, develops, promotes, and transfers information and techniques that help communities or industries implement more effective approaches to managing solid wastes, wastewater, and hazardous wastes. Important linkages are maintained with the Southeastern Hazardous Waste Roundtable, comprised of EPA; the Departments of Energy and Defense; the States of Tennessee, Kentucky, Mississippi, Alabama, Georgia, North Carolina, South Carolina, and Florida; and TVA.

In fiscal year 1989, this program completed an analysis of the solid waste management situation in the Metro-Nashville/upper Middle Tennessee region. The course book, "Waste: A Hidden Resource," was completed and distributed in the Valley region and nationally in cooperation with Keep America Beautiful, Inc. A study was implemented on developing a regional market for secondary materials recovered through waste recycling. The "We're on the River's Side" public lands cleanup demonstration was initiated. Several artificial wetland systems constructed to demonstrate an innovative, lower-cost approach to wastewater treatment were operated in cooperation with local governments, USEPA, and others. And, a waste reduction auditing and technology transfer project using the expertise of retired engineers and scientists was implemented in cooperation with the State of Tennessee, USEPA, and regional universities.

Activities in fiscal year 1990 include initiation of a regional solid waste management project in east Tennessee to demonstrate this approach to waste management planning. A major study will be initiated to explore the feasibility of TVA developing a refuse-derived fuel (RDF) combustor at one of its steam plants, as well as TVA provision of technical assistance on development of a multicounty municipal waste processing, recycling, and RDF production facility to provide fuel for the TVA combustor.

Efforts with Keep America Beautiful, Inc., will be continued with attention on local communities along the Tennessee River and its major tributaries. "We're on the River's Side," a public lands project, will be continued. Integrated waste management planning will be delivered to rural communities. Educational materials on appropriate waste technologies and case studies of successful projects will be developed and distributed to schools and communities. A landfill assistance program will be developed to assist communities in planning and siting landfills. Application of constructed wetland technology to treating water pollution from industries will continue.

Plans for fiscal year 1991 would continue technical assistance in integrated waste management to 50 rural communities. Continue monitoring and compiling information on performance of a "model solid waste management community." Prepare a manual of best integrated solid waste management practices for rural communities. Complete first phase monitoring of three constructed wetlands wastewater treatment demonstrations in Kentucky. In cooperation with State and Federal environmental agencies, develop and design an operations manual for constructed wetlands wastewater treatment systems. Develop and implement a model outreach program on the design, construction, and operation of constructed wetlands wastewater treatment system and other least-cost wastewater treatment solutions. Through this effort deliver technical assistance to 30 communities. Complete pilot testing on the use of constructed wetlands to remove "color" from pulp mill wastewater. Based on results, design and test a full-scale system at two pulp mill operations. And, identify and develop one multimedia waste stream or process research project to reduce amount the and/or toxicity of waste generated in the Valley through the existing cooperative industry Waste Reduction Assessment and Technology Transfer Program.

Agricultural Institute - This program helps improve the financial stability and profitability of farms and related businesses. It aids in reducing the impact of agricultural operations on the environment. And aims to diversify agriculture in the region through introduction of alternative enterprises and development of related markets. The Land and Water 201 interagency (SCS, EPA, and TVA) core staff is housed in the Agricultural Institute.

Activities for fiscal year 1989 included Cooperative programs with USDA, the universities, and grower cooperatives were conducted to stimulate the development of new markets and increase the efficiency of existing marketing efforts for fruits and vegetables. Irrigation and postharvest handling equipment around existing markets were demonstrated to show the value of those technologies in fruit and vegetable production. Leadership was provided in administering the State/USDA/EPA Land and Water 201 effort. Resource Management Conservation Farm demonstrations continued to introduce farming systems that reduce soil erosion, improve water quality. and maintain or increase farm income. Research and demonstrations were conducted to capitalize on the potential for expanding the swine industry in north Mississippi and adjoining states. A competitive bid approach to stimulating innovations in agriculture and broadening and diversifying TVA's mix of cooperators was fully implemented. Assistance was provided to strengthen Valley farm management associations.

Activities in fiscal year 1990 will continue to leadership in development of the State/USDA/TVA/EPA Land and Water 201 region soil and water conservation activities. Pilot projects will be established to demonstrate solutions to soil and water resource problems.

Technical and financial assistance will continue a demonstration combining of alfalfa and sawdust pelleting operations to provide year-round employment and high-value markets for alfalfa and wood waste. Financial feasibility analyses will be made for organizations looking at new agricultural-related facilities. These analyses typically stimulate expanded capital investments by agribusiness firms. TVA will assist farm associations in new roles providing services to farmers, including (1) computer use on farms for marketing and farm business records, and (2) commercializing new technology.

About 300 farm demonstrations will be conducted to increase production and income. Many of these will introduce high-value alternative enterprises. In addition about 225 demonstrations to promote adoption of conservation tillage technology will be conducted across the region. Innovative pilot projects will be established to demonstrate how new technology can be used to increase yields and improve land productivity, control pollution, maximize energy-use efficiency, and better manage farm finances.

Plans for fiscal year 1991 would include providing financial analysis for potentially bankrupt farming operations. Business management training would be provided to factor in changes in production and marketing. Over 300 production demonstrations showing how production and income can be improved would be conducted. Training would be provided to upgrade skills of rural residents to obtain employment in agricultural-related industries.

Cooperative multiagency soil and water quality demonstration projects would be conducted in the seven Valley States. About 200 Resource Management Conservation Farm demonstrations would continue to introduce farming systems that protect soil and water resources and increase farm income. About 225 demonstrations to promote the adoption of conservation tillage technology across the regional. Microcomputer software would be provided for incorporating conservation tillage practices in farm plans to help agricultural workers and farmers develop enterprise mixes that reduce soil erosion and protect farm income.

Improved technologies such as artificial wetlands throughout the region would be introduced to demonstrate how livestock waste can be treated on farms of the region. Technologies will be researched and demonstrated to show how livestock waste can be converted to useful products that will reduce pollution.

Assist State and local organizations in establishing farmers' markets to provide outlets for small and part-time farmers. Expand commercial production of aquacultural products into areas such as north Alabama and west Kentucky. Test the concept of "agricultural incubators" and introduce where feasible.

ECONOMIC AND RURAL DEVELOPMENT

Mr. Bevill: Are TVA's economic development activities coordinated on a region-wide basis? If so, how?

Mr. Runyon: Yes. All of TVA's economic development projects are under the management of TVA's Valley Resource Center (VRC). The VRC assures that all activities are focused on pressing region-wide problems and that all projects are properly distributed across the region for maximum economic impact. Externally, the VRC coordinates projects with appropriate State, regional and local groups to assure that there is no duplication and that TVA projects re-enforce and strengthen ongoing State and local economic development efforts. Increasingly, TVA's projects are being delivered within a subregional multicounty framework, such as Teamwork West Tennessee, a coalition of 20 rural west Tennessee counties.

ECONOMIC AND RURAL DEVELOPMENT

Mr. Bevill: Describe the functions of the Agricultural Institute. Why did TVA create it?

Mr. Runyon: Agriculture is important to the Tennessee Valley, accounting for approximately 18 percent of the region's total economic activity. The Agricultural Institute was created to help TVA conduct a wide range of programs to strengthen and improve agriculture as mandated by the TVA Act of 1933. These programs are focused on responding in a timely manner to changes in agriculture. Drawing on a wide range of agency skills and expertise, the Institute uses an educational/demonstration approach to communicate new developments to farmers and leaders in the agricultural industries.

The Institute has been integrated into TVA's economic development thrust through the Valley Resource Center. Based on recommendations by a national peer review group, its program efforts have been focused to three major efforts:

1. Improve the financial stability and profitability of farms and related businesses.
2. Reduce the impact of agricultural operations on the environment.
3. Diversify agriculture in the region through introduction of alternative enterprises and development of related markets.

Although traditional TVA programs of long-standing have been completely phased out, the cooperative arrangement with the land-grant universities is still a strong factor in TVA's program delivery.

A proposal evaluation and selection process has been put in place and is being used to establish working relationships with new cooperators. Additionally, this process is used to encourage innovative solutions to identified problems associated with environmental problems in agriculture and the establishment of agricultural-related business. Fifteen projects were initiated through this process in 1989.

The Land and Water 201 interagency (SCS, EPA, and TVA) core staff is housed in the Agricultural Institute. The Agricultural Institute is providing a TVA-wide coordinating role and has a major liaison role with the Land and Water 201 Steering Committee.

In total, the Agricultural Institute is sponsoring over 500 demonstrations with farmers and related businesses. Through these demonstrations, the cooperators and their neighbors are being shown how to improve their income, solve agricultural-related environmental problems, and how to grow new crops that have potential for the region.

ECONOMIC AND RURAL DEVELOPMENT

Mr. Bevill:	What was TVA's budget request to OMB for the Agricultural Institute?
Mr. Runyon:	$3,860,000.

ECONOMIC AND RURAL DEVELOPMENT

Mr. Bevill: What activities will not be accomplished in FY 1991 that were funded in FY 1990?

Mr. Runyon: At the funding level in the President's budget, the total program of the Agricultural Institute would be eliminated.

ECONOMIC AND RURAL DEVELOPMENT

Mr. Bevill: Describe the nature of the demonstration-type activities of the Agricultural Institute. What are they aimed at accomplishing? Are outside funds used to finance them?

Mr. Runyon: The basic purpose of TVA's agricultural programs is to show and encourage Valley farmers to adopt new technologies and skills that are necessary to improve family farm income. These demonstrations provide practical research based on proven information to farmers of the region. The Institute has demonstrations in areas of improving soil erosion and water quality, livestock waste management, new technology, marketing developments, developing alternative enterprises, and others.

A good example of a demonstration is the Resource Management Conservation (RMC) farms. These demonstrations focus on reducing soil erosion and improving water quality on Tennessee Valley farms. With these demonstration farms and related activities, soil erosion in the western part of the Valley was reduced from an average of 18 tons per acre to 9 tons per acre in eight years.

In cooperation with other agencies, the Institute helps plan and conduct field days and tours, and develop educational material and publications to encourage widespread adoption of the demonstrated practices. Documented results make it possible for agricultural workers to give other farmers more definitive advice, and may uncover the need for additional research.

Demonstrations are jointly funded by TVA and other agencies. The cooperating farms or businesses also make an investment that consistently exceeds the amount of TVA's investment. The cooperators contribution can be cash, land, equipment, labor, or facilities.

Many states outside the region, and foreign countries, have used the results from TVA's demonstration program to address problems in their state or country.

ECONOMIC AND RURAL DEVELOPMENT

Mr. Bevill: How much private sector funding has been realized through FY 1989 and projected for support of Agricultural Institute program activities in FY 1990?

Mr. Runyon: The Agricultural Institute programs were never envisioned to be totally supported by private sector funding. The small limited resource farm families served by the Institute's agricultural development programs are not financially capable of paying for services from any organization. Many of these farmers are entrepreneurs who risk the few resources available to provide a better way of life for their families.

The Institute seeks to leverage money and resources from both private and public organizations to help fund the programs. The success of these efforts are summarized below and in the accompanying table.

Private sector funds--$6.2 million in FY 1989. Demonstrations on privately-owned farms: Typically, a TVA demonstration farm will double its income during the 5-year period of program participation. TVA had about 500 private farm demonstrators in FY 1989. As a group, they added more than $4 million a year in net capital investments on their farms and purchased about $2.2 million in additional production inputs. TVA used about $500,000 of Institute funds to leverage these results.

Competitive selection: In 1988 and 1989, the Institute used $450,000 of its funds to initiate a competitive proposal evaluation and selection process that leveraged $696,000 of private funds. In 1990, the Institute plans to use $350,000 of its funds through this process. These joint TVA/private business projects run from one to three years and focus on new technology ready to be commercialized applicable to Agriculture Institute program objectives.

Public sector funds--$4.8 million in FY 1989. Cooperative Extension Service: In 1989, TVA's agreements with the Cooperative Extension Services of the Valley's land-grant universities led to $1,879,000 of university funds being spent on projects on which TVA contributed $1,435,081. In 1990 and 1991, we project a TVA expenditure of $1,301,000 to leverage $2,152,000 in university funds.

Other state and public funds: State agricultural departments and such Federal agencies as USDA, ARC, and EPA also contribute funds to projects in which TVA is involved such as farmer cooperatives, agribusiness development (e.g., the Seaboard poultry project in Kentucky), Land and Water 201, and others. TVA estimates that these funds will total about $2,500,000 in 1989 and 1990.

	In Thousands of Dollars					
	Actual FY 1989		Estimated FY 1990		Estimated FY 1991	
		%		%		%
TVA Funds[a]	3,860	27	3,810	26	3,860	26
Private Funds[b]	6,200	43	6,200	42	6,200	42
Cooperative Extension Service Funds[c]	1,879	13	2,152	15	2,152	15
Other State Funds[d]	2,000	14	2,000	14	2,000	14
Other Public Funds[d]	500	4	500	4	500	3
	14,439		14,662		14,712	

a. Requested level.

b. This figure includes the dollars invested by farmer and private cooperators.

c. The land-grant universities have historically spent more of their own funds than TVA puts into the cooperative program. For example, in 1990 TVA will reimburse the land-grant universities $1,435,081. In addition, the land-grant universities will spend $1,879,000 of their money.

d. These are estimates. The State funds include inputs to farmer cooperatives and projects such as the Seaboard Poultry project in Kentucky. Other public funds include ARC, EPA, and USDA funds for the Mississippi Vegetable Study and for inputs to Land and Water 201, special farm crisis efforts, and conservation technicians.

STEWARDSHIP

Mr. Bevill: Could you briefly describe the aquatic plant control measures you will be demonstrating this year on Guntersville Reservoir? What success have you had so far?

Mr. Runyon: The U.S. Army Corps of Engineers and TVA have jointly developed a comprehensive plan for managing aquatic vegetation on Guntersville Reservoir. Public meetings have been held on a draft environmental assessment relating to a major aquatic plant control measure planned for implementation in April 1990, which involves the stocking of sterile grass carp and concomitant monitoring of biological and water quality parameters. The environmental assessment will be completed prior to the stocking. Additional activities will include the use and evaluation of mechanical harvesters, field tests of other biological control organisms, and detailed assessments of herbicidal treatment. Other evaluations will be initiated in the summer of 1990 including an assessment of the economic and recreational effects of aquatic vegetation. A contractor is being selected to develop a master plan for managing aquatic plants based on public input and use patterns for the reservoir. Informational materials, now being prepared for public dissemination, will explain the objectives and activities of the program in more detail. Meetings have been held among the participating agencies to ensure full project coordination and cooperation.

STEWARDSHIP

Mr. Bevill:	Describe your plans for fiscal years 1990 and 1991 in the control of aquatic plants for various sites at the requested level of funding. Will control activities be sufficient to halt the spread of aquatic plants? If not, what additional activities are needed and how much funding would be required to support this level of activity?
Mr. Runyon:	The severe infestations of aquatic plants that expanded rapidly during the 4-year drought have declined slightly because of heavy rainfall and weed control measures in calendar year 1989. Although the amount of aquatic weed treatment projected for fiscal years 1990 and 1991 is 8,300 and 9,300 acre-treatments, respectively, this projected level of operational control plus some control expected from the grass carp feeding and harvester test demonstrations can be expected to keep aquatic weeds from expanding significantly and thereby allow stewardship objectives to be met. However, the spread of aquatic plants depends more on factors such as streamflow and inadvertent dissemination by boaters and other recreationists. Thus, continued spread of unwanted species, such as hydrilla, into new sites is expected. Continued fiscal year 1991 funding ($2.3 million) for the joint U.S. Army Corps of Engineers/TVA demonstration on Guntersville is essential to ensure continuity in activities begun in fiscal year 1990 that are designed to cover a continuous 5-year period. Reduced funding as provided in the President's budget would jeopardize the total project because most of the activities are interrelated, and if some were not undertaken, many of the first-year accomplishments would be negated.

STEWARDSHIP

Mr. Bevill: Please provide an overview and the status of the TVA dam safety capital modifications program. Tabulate completed, current, and anticipated projects; indicate funding sources and needs; include a construction timetable and completion dates; and describe the benefits to be derived from this work. At which locations have studies indicated no need for modifications and why?

Mr. Runyon: The objective of the dam safety program is to ensure the hydrologic and seismic integrity of agency dams and ensure that they are capable of operating in a manner conforming to Federal Emergency Management Agency (FEMA) guidelines. The TVA program, designed to be consistent with similar programs in other Federal agencies, officially began in 1982 with the establishment of a 9-year program of studies, engineering analyses, and initial capital modifications to bring dams with known deficiencies up to FEMA standards. Construction modifications resulting from the program are expected to extend beyond the study period (to the year 2000 or later) as designs are completed.

Ongoing elements of the program include data gathering and analysis, facility inspection and maintenance, emergency action plan development and maintenance, and liaison with local and State officials for dam safety operations. To date, over $43 million has been spent for capital improvements at 14 of the 22 dams identified for study. Of this, over $15 million has been from appropriations.

Future financial requirements for capital modifications cannot be known until detailed design studies are completed, but initial estimates are that $6-7 million could be needed for capital modifications in each of the next three fiscal years. A worse case scenario could require up to $60 million in appropriations over the next 10 years if 4 of the downstream dams should require seismic as well as hydrologic modifications.

Ongoing operating and maintenance expenses continue to be projected at $5-7 million annually from appropriations or $8-10 million with the inclusion of power funds.

The accompanying tables contain information on specific dams.

TVA DAM SAFETY PROGRAM

Status of Nine-Year Analysis of Dams With Known Deficiencies

Dam	Study: Hydrologic	Study: Seismic	Emergency Action Plan[a]	Operation and Maintenance Manual[b]	Construction Modification (Year)
Blue Ridge	C/Ø[c]	C[c]	C	P	C (1986)
Watauga	C	N	C	Ø	C (1983)
Fort Patrick Henry	C	N	C	Ø	N[d]
Boone	C	N	C	Ø	C (1984)
Chatuge	C	N	C	P	C (1986)
Nottely	C	N	C	P	C (1988)
Fontana	C	C	C	Ø	Ø (1988)[e]
Fort Loudoun	C	C	C	Ø	C (1989)
Tellico	C	P	C	Ø	C (1989)
Douglas	C	N	C	P	C (1987)
Cherokee	C	N	C	P	C (1985)
Melton Hill	C	N	C	Ø	C (1988)
Beech River	C	Ø	C	P	C (1989)
Great Falls	C	N	Ø	Ø	C (1989)
Nickajack	C	N	C	C	Ø
Chickamauga	Ø[f]	P	C	C	P[f]
Ocoee 3	Ø	N	C	Ø	P
Watts Bar	C	P	C	Ø	P[f]
Guntersville	Ø	P	C	P	P
Wheeler	C	N	C	C	C (1982)
Pickwick	Ø	P	Ø	Ø	P
Kentucky	N	C	Ø	C	N[g]
Total - Completed	16	4	19	4	14
- In Progress	5	1	3	11	1
- Planned	0	5	-	7	5
- Not Required	2	12	-	-	2

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a. All dams have emergency action plans (contained in 30 books) except for 7 low-hazard structures.
b. Thirty-six manuals have been identified for completion.
c. To be reexamined for both seismic and probable maximum flood conditions.
d. The Watauga-Boone modifications resolved hydrologic concerns.
e. Seismic modification completed; hydrologic initiated in fiscal year 1990.
f. On hold pending the outcome of future lock studies.
g. No hydrologic concern; the dam will seismically withstand the maximum credible earthquake.

Symbols: C - Completed; Ø - In progress; P - Planned; N - Not Required.

TVA DAM SAFETY PROGRAM

Status of Capital Modifications - Fiscal Year 1990

			Failure Consequences				Construction Timetable												
			Population		Cost ($Million)[a]			Fiscal Year											
Dam	Construction Modification	Funding and Source ($Million)	Exposed	Fatalities	Physical Damage	Other	Prior Years	90	91	92	93	94	95	96	97	98	99	00	01
Completed																			
Cherokee	Added a 7.2 ft. concrete non-overflow section	0.166 PWR(H) 0.229 APP(H)	-	-	-	-	1982												
Wheeler	Drilled foundation drains to relieve uplift	0.126 PWR(H) 0.174 APP(H)	-	-	-	-	1982												
Watauga	Raised dam height 10 ft.	0.640 APP(H)	33,180	3,130	5,577	15	1983												
Boone	Raised dam height 8.5 ft. and added a concrete slab	1.200 APP(H)	3,620	144	1,472	126	1984												
Chatuge	Raised dam height 6.5 ft.	0.720 PWR(H) 0.995 APP(H)	4,190	1,740	473	51	1986												
Douglas	Raised dam height 13.5 ft. and raised 8 saddle dams	1.036 PWR(H) 1.430 APP(H)	2,387	72	3,542	3,998	1987												
Nottely	Increased dam height 13.5 ft. and modified the spillway	3.938 PWR(H) 5.436 APP(H)	1,850	312	410	51	1988												
Melton Hill	Strengthened the abutments	0.093 PWR(H) 0.173 APP(H)	31	4	173	24	1988												
Great Falls	Anchored the concrete gravity dam to the foundation with post-tensioned rods	4.486 PWR(H)	-	-	-	-	1989												
Fort Loudoun	Added a 3.25 ft. concrete wall on the earthen embankment and saddle dam	0.503 PWR(H) 0.695 APP(H)	71,540	45	6,838	5,373	1969												
Subtotal—Completed		11.068 PWR 10.972 APP	116,798	5,447	18,485	9,638													

STEWARDSHIP

Mr. Bevill: What is the status of water quality in the Valley? Are any water quality activities planned for fiscal year 1991? If so, what? What additional activities could be accomplished with additional funds?

Mr. Runyon: The status of water quality in a Valley stream or lake is best characterized by determining how well it will support a desired use. The quality of water is sufficient to support most of the designated or recognized uses in many places. Although some streams and reservoirs do have use impairments that are severe, extensive, and continuous, impairments are more typically intermittent and localized and result from storm runoff pollution from agricultural, urban, mining, and construction areas. Siltation resulting from this runoff, bacterial contamination, aquatic weeds, toxic materials in fish and sediments, and low concentrations of dissolved oxygen in the bottom waters and releases from some reservoirs are causes of the most significant water-use impairments in the Valley.

Water quality activities planned for fiscal year 1991 include trend monitoring at 12 stations, vital-sign monitoring at 9 mainstream and 3 tributary reservoirs, targeted monitoring in 1 watershed, cooperative improvement efforts in 4 priority watersheds, detailed assessment of 1 reservoir to develop watershed water quality management and protection plans, completion of 2 water resource issues analyses, and establishment of citizen volunteer monitoring of 2 reservoirs. TVA will continue to identify Valley-wide water quality needs and priorities and collaborate with other agencies to formulate plans for reducing pollution loads to agency reservoirs and tributary streams.

Additional funds could be used to monitor significant parts of the Valley not covered previously and to assist the States in controlling nonpoint sources of surface and groundwater pollution in priority watersheds. Specifically, measure water quality trends in 2 other large watersheds and 8 mid-size watersheds, extend vital-sign monitoring to 2 more large reservoirs, conduct a detailed assessment of 1 other high priority reservoir and targeted monitoring on 2 more watersheds, expand citizen volunteer monitoring to the major embayments in all mainstream reservoirs, assist 2 communities or counties in demonstrating wastewater treatment systems to protect groundwater sources from contamination, and provide technical assistance and data to control pollution in 1 other priority watershed.

STEWARDSHIP

Mr. Bevill:	Last year it appeared that the years of drought and low water conditions in the Tennessee Valley might be ending. Are you still experiencing a drought in the region?
Mr. Runyon:	No. Rainfall across the Valley averaged 60.8 inches last year--9.5 inches more than normal. The heaviest rainfall occurred in June and September, well outside the normal flood season when reservoirs were near full pool, causing substantial agricultural flooding, particularly in northern Alabama and western Tennessee. Flood control operations were required on many occasions and the abnormally heavy summer rainfall resulted in spillway discharges at most dams. During the first 2 months of calendar year 1990, rainfall across the Valley averaged about 5 inches above normal.

STEWARDSHIP

Mr. Bevill: What authority does TVA have to collect fees or revenues for the use of Land Between The Lakes (LBL) facilities?

Mr. Runyon: The TVA Act provides the authority and discretion to establish and collect those fees or revenues that the TVA Board deems appropriate for use of LBL facilities. Annual revenues at LBL have been increased nearly 3-fold since fiscal year 1981--from $738,000 to a projected high of $1,987,000 for fiscal year 1990--by increasing existing fees and implementing new ones. Income at LBL is expected to equal about 22 percent of its fiscal year 1990 operating budget. It should be noted that aside from development of new attractions at LBL, essentially all potential sources of revenue under existing authority are being used, and market constraints will not permit further increases in fees without adversely affecting visitation and total revenue collection. Likewise, any supplement to existing TVA authority would provide few new opportunities to enhance revenue.

The Land and Water Conservation Fund Act restricts the fee collection authority of TVA and other Federal agencies by prohibiting the collection of fees for admission and certain uses, such as launching boats and camping at undeveloped areas. However, even if authority to implement such fees were to be obtained, they not be likely to generate significant additional revenues.

STEWARDSHIP

Mr. Bevill: How much revenue, by type, was collected at Land Between The Lakes (LBL) in fiscal year 1989? How much is expected, by type, in fiscal years 1990 and 1991?

Mr. Runyon: Actual and estimated revenue collections at LBL are:

Type	Nominal Amount (Thousands of Dollars) Actual FY89	Estimated FY90	Estimated FY91*
Education group camping..............	518	598	-
Family camping........................	482	457	450
Timber sales and wood permits........	434	410	425
Hunting permits and application fees.	227	211	-
Interpretive facilities and programs.	227	228	-
Lake access and special use areas....	75	78	-
Special recreation programs and wildlife conservation stamps........	-	5	-
Total..........................	1,963	1,987	875

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* At the operational level provided for in the budget request.

STEWARDSHIP

Mr. Bevill: Describe the condition of facilities at Land Between The Lakes (LBL). Does the budget contain sufficient funding to maintain or develop needed facilities?

Mr. Runyon: The majority of LBL facilities and roads have been in use for more than 15 years and several facilities have received public use for over 20 years. Declining budgets since the early 1980's have seriously constrained basic maintenance activities and have resulted in "emergency only" levels of facility upkeep. Although jobs bill activities in 1983-84 provided some facility upgrade, road improvement, and three new facilities, they was only a "temporary fix" to a small percentage of the growing maintenance backlog. The small stewardship increase in the fiscal year 1990 LBL budget is providing for some improvements at the most deteriorated facilities.

The budget request is adequate to begin reducing the current $9.8 million backlog of identified facility maintenance needs. Water, wastewater treatment, and heating and air conditioning systems will be renovated; roads will be paved and abandoned ones refurbished; and some structures and grounds will be upgraded. Replacing deteriorated toilet/shower buildings, upgrading electrical service at campsites in family campgrounds, and replacing kitchen equipment and furniture at education group camps are also targeted. Consistent with the LBL development plan for the 1990's, the budget request also provides funding for the first phase of planning and design for new attractions to increase LBL visitation and revenues and to further stimulate the regional economy.

WATER AND LAND

Mr. Bevill: Describe the funding reductions and their impact on the land and forest resources program for fiscal year 1991.

Mr. Runyon: A reduction from the proposed funding of $2,019,000 to $744,000 would essentially eliminate the outreach portions of three major resource programs--forestry, recreation, and environmental education. It would permit cooperative reclamation activities on 600 acres of eroding land in the Copper Basin area of Tennessee.

A loss of $577,000 in funding for forestry would require severe curtailment in the maintenance and updating of two large resource information systems. Forest industry development activities which assisted 123 firms in fiscal year 1989 would be eliminated. Data from these systems and this technical assistance were critical to decisions that resulted in expansions or location of plants within the Valley providing over 1,550 new jobs and about $600 million in new investments. Other technical assistance aimed at helping small businesses improve efficiency and productivity, closing the timber harvesting technology gap between the United States and European countries, and demonstrating ways to lessen harvesting impacts, such as erosion and siltation, would be terminated.

Recreation-related programs eliminated by the $372,000 reduction include technical planning assistance to other public agencies and commercial recreation operators on agency lands and reservoirs, which has helped spur an investment by others of $10 million in facilities over the past five years; organized recreation programs at selected recreation areas which have served over 100,000 participants, including "special populations"; promotion of water safety through public education and direct actions to reduce accidents and drownings around TVA dams and recreation facilities; and distribution of information about recreation opportunities on the TVA reservoir system to the general public.

Loss of $326,000 in funding would eliminate continuing development of and assistance to the university environmental education network by the environmental education program. The network is 75 percent complete and reached over 7,500 teachers and hundreds of thousands of students last year. The U.S. Environmental Protection Agency is currently making plans to replicate the network Nation-wide and loss of funding would jeopardize that effort.

WATER AND LAND

Mr. Bevill: Why is TVA involved in groundwater related activities? What is TVA's responsibility in this area and how does it compare with that of the States or other Federal agencies.

Mr. Runyon: TVA participates in groundwater protection activities because groundwater constitutes the base flow for all of the Valley's streams and rivers and is the primary water supply source for nearly two-thirds of the Valley residents. Once groundwater is polluted, clean-up can be prohibitively expensive or even infeasible. Prevention of contamination is essential to the continued availability of this resource and the protection of Valley streams and the reservoir system.

Noting that local governments have significant powers to protect groundwater, on the regional level TVA seeks to serve as a catalyst for local action in groundwater protection. TVA promotes and participates in resource assessment and issue identification using the combined technical and financial resources of various Federal, State, and local organizations, and assists local governments in determining appropriate actions for groundwater protection. The technical and financial support TVA provides to some activities encourages involvement by others. On the national level, TVA develops and promotes improved best-management practices for agricultural waste management and for nutrient use by farmers in agricultural cropping systems and by fertilizer dealers at distribution points. TVA also participates on interagency groundwacer committees dealing with resource assessment and protection, and the proper use of agrichemicals.

Responsibilities for groundwater vary from state-to-state and agency-to-agency. For example, the U.S. Environmental Protection Agency is involved in national policy issues such as wellhead protection and remediation of Superfund sites. The states provide regulations and guidelines for implementing specific programs such as solid waste disposal, well drilling, or control of injection wells. The U.S. Geological Survey collects water quantity and quality data to assess the groundwater resource. Agencies of the U.S. Department of Agriculture promote groundwater protection through planning and assistance in implementing best management practices. In the Valley, TVA assists in integrating these activities to achieve effective comprehensive management and protection of water resources.

TVA DAM SAFETY PROGRAM

Status of Capital Modifications - Fiscal Year 1990 (Continued)

Dam	Construction Modification	Funding and Source ($Million)	Failure Consequences: Population Exposed	Failure Consequences: Population Fatalities	Failure Consequences: Cost ($Million)[a] Physical Damage	Failure Consequences: Cost ($Million)[a] Other	Construction Timetable: Prior Years	Construction Timetable: Fiscal Year 90 91 92 93 94 95 96 97 98 99 00 01
In Progress or Planned								
Tellico	Construct a 2,000 ft. ungated emergency spillway	0.700 PWR(H) 2.600 APP(H) 2.100 PWR(S) 7.900 APP(S)	(Acts hydrologically with Fort Loudoun)				1989	Seismic 93xxxxxxxxxxxxxx97
Fontana	Reinforced the top 32 ft.	0.652 PWR(S) 0.899 APP(S)	81	22	69	147	1988	
	Modify the emergency spillway	0.315 PWR(H) 0.435 APP(H)						Hydrologic 90xxxxxx92
Nickajack	Raise earthen embankments, increase spillway capacity, and armor existing embankments (in some combination)	1.740 PWR(H) 12.760 APP(H)	3,508	26	369	258		Hydrologic 89xxxxxxxxxxxxxx93
Beech River	Increase dam height 4.5 ft., raise two saddle dams, and armor the earthen spillway	0.800 APP(H) 5.500 APP(S)	262	77	18	4	1989	Seismic 91xxxxxx93
Blue Ridge[b]	Increased spillway capacity and installed an emergency warning system	10.700 PWR(H) 4.600 PWR(H)[b]	2,500	650	350	-	1986	91xxxxxx93[b]
Watts Bar[c]	Increase dam height 10 ft. and construct a new downstream embankment and a left rim dike after new lock construction	1.260 PWR(H) 1.740 APP(H) 4.200 PWR(S) 5.800 APP(S)	52,640	53	2,781	2,088		Hydrologic and Seismic 94xxxxxxxxxx97
Ocoee 3	Hydrologic modification to be determined	0.500 PWR(H)	0	0	0.3	-		Hydrologic 92
Chickamauga[c]	Pending seismic analysis	4.200 PWR(S) 5.800 APP(S)	1,064	0	812	448		Seismic 94xxxxxxxxxx97

TVA DAM SAFETY PROGRAM

Status of Capital Modifications - Fiscal Year 1990 (Continued)

			Failure Consequences				Construction Timetable												
		Funding and Source	Population		Cost ($Million)[a] Physical		Prior	Fiscal Year											
Dam	Construction Modification	($Million)	Exposed	Fatalities	Damage	Other	Years	90	91	92	93	94	95	96	97	98	99	00	01
Guntersville	Hydrologic or seismic modification to be determined	1.100 PWR(H) 1.400 APP(H) 2.500 PWR(S) 3.500 APP(S)	12,400	-	2,209	-				Hydrologic and Seismic 92xxxxxx94									
Pickwick	Hydrologic or Seismic modification to be determined	4.200 PWR(S) 5.800 APP(S)	-	-	-	-										Seismic 98xxxxxx00			
Kentucky	None required	-----	-	-	-	-													
Subtotal--In Progress or Planned		38.967 PWR 54.934 APP	72,455	828	6,608.3	2,945													
Total		50.035 PWR 65.906 APP	189,253	6,275	25,093.3	12,583													

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a. These cost estimates have been escalated to 1989 dollar values.

b. Being reevaluated for a 100 percent probable maximum flood condition and for MCE loads.

c. Construction modifications are on hold pending the results of a navigation study of the need for additional locks.

Symbols/Abbreviations: H - Hydrologic modification; S - Seismic modification; PMF - Probable maximum flood; MCE - Maximum credible earthquake.

WATER AND LAND

Mr. Bevill: What are the general water quality conditions in TVA reservoirs and tributaries?

Mr. Runyon: TVA reservoirs are used extensively for recreation, they are a source of industrial and domestic water, and they support a diverse aquatic community. In the Tennessee Valley generally, water quality--which is a product of hydrologic conditions, pollutant loadings, and use and developmental pressures--is adequate for most desired uses.

Hydrologic variables such as rainfall and runoff affect water quality significantly. Under very low flow conditions, temperature and oxygen levels may become critical and algal productivity may increase; under high flow conditions, nonpoint source pollutant loadings may adversely affect bacteriological concentrations and oxygen levels, and trash and debris may temporarily limit some uses. In recent years, both extremes have occurred and have affected water quality. Pollutant loadings are generated not only by point sources in or near a given reservoir but by inputs from its entire watershed. Although point sources are generally well regulated and have less effect on reservoirs now than in the past, nonpoint sources are as yet unregulated and contribute large quantities of sediment, nutrients, or bacteria some places in the reservoir system. Increasing use pressures on the system, due in part to rapid development along reservoir shorelines, are resulting in more frequent conflicts between uses and users. Shoreline development, essentially uncontrolled, is a long-term threat to the very qualities that now make it attractive because it reduces aquatic habitat and increases nonpoint pollution.

The most common water quality problems in the reservoirs are oxygen depletion in deeper reservoirs and their releases, toxic substances in fish flesh, siltation, and aquatic weed infestations. These conditions are rarely a result of single or well-defined pollutant sources, but rather the result of chronic, cumulative contributions from a variety of sources often remote from the locations they ultimately affect.

Agency water quality monitoring and watershed management programs are designed to identify reservoir water quality problems and mitigate them. Monitoring--which includes assessments of bacteriological quality at sensitive recreation sites, fish health, toxic substances in fish flesh, sediment quality, and general water quality--allows comparisons of conditions among reservoirs and analyses of changes over time in individual reservoirs. Watershed management--which includes identifying pollution sources and their effects, developing management plans, and providing technical assistance in implementing solutions--helps protect the quality of tributary streams and reduce the pollutant load entering TVA reservoirs.

LAND BETWEEN THE LAKES (LBL)

Mr. Bevill:	Please describe the development plan proposed to evaluate changes to the management and infrastructure of LBL to meet the needs of current and future users and to make overall operations more cost effective.
Mr. Runyon:	The proposed LBL development plan is a strategy designed to increase operational efficiency and regional economic growth by increasing visitation at LBL. The plan is the result of a comprehensive planning effort.

In 1985, LBL adopted a strategic direction that identified a market-oriented approach for managing and developing LBL. This approach is based on the premise that LBL can most effectively achieve its mission by recognizing the needs and interests of its various users and focusing funding on meeting these needs. Input was gathered from LBL's various users as well as individuals, organizations, and businesses which are, or may be, benefited by LBL activities. Needs were assessed through on-site surveys, public meetings, direct mail, and review of trends.

The economic feasibility of operational changes and new developments was assessed both in-house and by outside consultants. This information was then used to determine modifications to existing operations and new facility and program needs.

Recommended changes and additions to LBL's management and infrastructure include three new attractions and the upgrade of existing campgrounds to meet today's recreation market needs. The additions include an environmental conference center, an historic village, and a gateway complex. Visitation to LBL and the region are anticipated to increase by about 25 percent if all developments are approved and implemented.

About $15 million would be required during a 5-year period to develop these facilities--$11 million from Federal appropriations and $4 million from partnership agreements with the private and public sectors. All attractions will generate revenues for TVA that will equal or exceed their costs.

LAND BETWEEN THE LAKES (LBL)

Mr. Bevill: Does LBL have sufficient staff resources to operate properly and provide security for its facilities?

Mr. Runyon: No. Ten successive years of constant budget decline have reduced LBL spending power by more than 55 percent and staffing levels by some 40 employees. The proposed funding level for daily operation of LBL facilities and programs during fiscal year 1991 is actually $2.1 million less than that for fiscal year 1990.

The funding level proposed for fiscal year 1991 would necessitate closing Empire Farm, The Homeplace-1850, Woodlands Nature Center, and Golden Pond Theater interpretive facilities; Brandon Spring and Youth Station group camps; Energy Lake Campground; and the north and south welcome stations. All education, demonstration, research, marketing and promotion pursuits and capabilities would be eliminated, as would all special events and public programs. Some 50 staff positions would be eliminated, more than $1 million in revenue would be lost, and visitation would be reduced by some 1.1 million annual visits because of the closed facilities. Security and fire protection for all facilities and visitors would be slightly increased to provide adequate protection of the $82 million Federal investment in LBL.

The fiscal year 1991 budget request reduces LBL operation to that of providing basic recreation (use of the land base and non-fee camping areas) to the general public and operating two family campgrounds.

LAND BETWEEN THE LAKES (LBL)

Mr. Bevill:	Are there any new operational initiatives planned for LBL? If so, what?
Mr. Runyon:	Based on funding levels provided for operation of facilities and programs in the budget request, no new initiatives are planned for LBL during fiscal year 1991. The budget request does, however, provide $1 million for the first phase of planning and design of new attractions at LBL to accommodate more users and increase revenues. TVA will seek partnership agreements with the private and public sectors, as well as with nonprofit organizations to assist in constructing, operating, and maintaining selected facilities. Through these arrangements, visitation, revenues from facility operation, and public benefits will be increased.

NATIONAL FERTILIZER & ENVIRONMENTAL RESEARCH CENTER

Mr. Bevill: You recently changed the name of the National Fertilizer Center to emphasize environmental research. Please describe the future role you see for this facility.

Mr. Runyon: The Center will continue its fertilizer research and development to create and introduce new technologies to help U.S. agriculture produce food and fiber more efficiently. A major new emphasis is being placed, however, on the development of technologies to help farmers produce food and fiber in an environmentally acceptable manner. In the future, much more attention will be paid to determining the environmental effects of fertilizer use and other agricultural practices as we focus on products and practices which minimize adverse environmental effects. The National Fertilizer & Environmental Research Center (NFERC) will play a major role in the Nation's efforts to prevent contamination of surface and groundwaters. Our technologies will develop new products and processes to reduce potential impacts of agriculture and fertilizer operations on the environment. Through research and development, we will create new technologies to clean up contaminated sites and waste streams that pose a threat to water quality. This new emphasis is in concert with the Nation's concern for the environment. Therefore, our focus is on technologies which help satisfy future regulations requiring "environmentally safe" fertilizers.

NATIONAL FERTILIZER & ENVIRONMENTAL RESEARCH CENTER

Mr. Bevill: What expertise exists at the Center which is not available at other facilities throughout the country?

Mr. Runyon: The uniqueness of the expertise at the National Fertilizer & Environmental Research Center is found in the mix of scientific and technical disciplines gathered at one location, all working toward a common mission and with common goals. The major disciplines at the Center include chemists, chemical engineers, agronomists, soil chemists, biologists, and economists, all focusing on researching and developing new fertilizer materials, fertilizer production processes, and fertilizer use practices which are economically and environmentally acceptable. The individual disciplines can be found at other locations scattered across the country, but this is the only facility in the United States which combines these disciplines into a single concerted effort.

NATIONAL FERTILIZER & ENVIRONMENTAL RESEARCH CENTER

Mr. Bevill: How will environmental research performed at the Center be coordinated with other Federal and state agencies and private sector organizations to prevent any duplication of efforts?

Mr. Runyon: We are working very closely with other Federal agencies, such as the USDA, the Environmental Protection Agency, and the U.S. Geological Survey. We are also working very closely with state agricultural agencies having water quality responsibility and with the state entities engaged in environmental regulation. The major thrust is to assure that our programs are complementary, not duplicative. The engineering and technical expertise of the NFERC--coupled with modern laboratories and pilot plants--is a special contribution the Center can make in concert with other agencies in addressing water quality problems. Our expertise and facilities dovetail nicely with the mission of the other Federal and State agencies, which do not have the engineering and pilot plant capability that we do. In addition to our research and development activities, the results of which are shared with other Federal agencies and the state organizations, we conduct technology transfer programs in cooperation with the other agencies. In many cases, State environmental regulatory agencies and Federal agencies are cosponsors with the NFERC in carrying out demonstrations in cooperation with fertilizer dealers. We jointly conduct nutrient-related environmental research with land-grant universities across the country and in cooperation with state agencies.

The private sector provides a channel through which we introduce the technology that comes from the NFERC research and development effort. The private sector also finances the capital investment required to use our technology, particularly in the construction of containment facilities. This information is shared with other dealers across the country in an effort to help them prevent any water quality contamination from their operations. The private sector is also a client, reimbursing us for the environmental site assessments that we conduct for them.

NATIONAL FERTILIZER & ENVIRONMENTAL RESEARCH CENTER

Mr. Bevill: How will the fertilizer research and development efforts be reduced?

Mr. Runyon: Although there will be changes in emphasis in fertilizer research and development programs, it is not the intention that there be any overall reduction in our efforts. For a number of years, we have been moving our research and development toward environmental-related areas because we were aware that potential problems exist for the contamination of surface and groundwater from fertilizer and agricultural operations. In the last year and a half, this trend has accelerated. Because of the current national concerns about the environment, particularly contamination of water, we are further intensifying our work in the environmental R&D area. We will continue to conduct research and development in fertilizer because that is a key part of the Nation's food production system. The thrust of the research will be moving more toward how we can prevent environmental degradation from fertilizer and agricultural operations. A major need exists to develop technologies to clean up contaminated waste streams and sites resulting from previous practices that were thought to be sound. In many parts of the country, contaminated sites will create problems from an environmental viewpoint. We will be developing cost-effective technologies to help the fertilizer industry solve its contamination problems onsite and lessen the potential impact of water contamination.

NATIONAL FERTILIZER & ENVIRONMENTAL RESEARCH CENTER

Mr. Bevill: How will the Center be funded in FY 1991? What alternatives have been pursued to increase funding from other sectors?

Mr. Runyon: Funding for FY 1991 will come from Federal appropriations, sale of experimental fertilizer products, private sector funding, and reimbursable contractual work for other government agencies. We are actively pursuing all of these avenues to fund the research and development activities of the NFERC. We are conducting a number of activities to pursue private sector funding. We are implementing a patent/license policy that charges for use of NFERC technology. This reverses a long-time policy of granting free use of licenses to use our technology. We are also conducting programs to market to fertilizer companies technical services that provide them exclusive benefits. In the environmental-related areas, we are conducting site assessments on a fee basis for fertilizer companies across the country. As we develop new technologies in the environmental area, we will market that technology to other industrial firms. We are also charging the private sector for publications and for services that were previously provided at no cost. We also have a small staff, funded from outside sources, dedicated to seeking additional private sources of funding.

Moreover, we are continuing to aggressively market our technical expertise to other Federal agencies, such as the Department of Defense and Department of Energy. Through such an effort, we are providing much needed services to the other agencies, and this approach of sharing our technical expertise keeps down the costs of other government agencies. This also helps us to keep our fertilizer R&D team intact without having to bear the total cost for such activities. We expect to generate over $10 million in reimbursable and private sector work in 1991.

FUNDING CATEGORIES

Mr. Myers:	Please provide the funding level in each general program category that is necessary to provide for adequate maintenance of TVA facilities and continuation of nonpower programs.
Mr. Runyon:	The following table displays the funding required for TVA to provide adequate maintenance of facilities and to continue its nonpower programs in fiscal year 1991:

Program Area	$000
Stewardship	67,797
Water and Land	12,261
Land Between The Lakes	4,600
Rural Development	19,714
National Fertilizer & Environmental Research Center	38,008
Total	$142,380

REFINANCING

Mr. Myers: Explain how TVA's decision to refinance long-term debt in the private sector will affect its ability to secure future financing from Federal sources.

Mr. Runyon: TVA entered into an agreement with the Federal Financing Bank (FFB) that defines TVA's future Federal financing options. In summary, this agreement permits TVA to borrow up to $2 billion of short-term funds for a period of 2 years. It is the intent of the TVA to request renewal of this line of credit prior to its expiration. In addition, the agreement permits TVA to continue borrowing for purposes of its nuclear fuel financing in an amount not to exceed $2 billion for a period of 4 years. Further, the agreement permits the TVA to petition the FFB for resumption of long-term borrowing from the FFB and recognizes that the FFB will give the TVA a good faith hearing on any such request.

DAM SAFETY

Mr. Myers:	Please update the Subcommittee on the status of operations at all TVA nuclear facilities?
Mr. Runyon:	Sequoyah Unit 1 is currently preparing for its fourth refueling outage scheduled to begin March 16,1990. Unit 2 is operating at 100% power and 108 days of continuous operation. Browns Ferry Unit 1 current restart date is projected to be January 1995. Unit 2 current restart date is projected to be summer 1990. Unit 3 current restart date is projected to be January 1993. Watts Bar Unit 1 goal is commercial operation in early Fiscal 1992. Unit 2 schedule is currently under development. Bellefonte comprehensive study on remaining workscope and cost is being performed by a Nuclear Power task force.

TVA/DOE CONTRACT

Mr. Myers: Is the TVA-DOE settlement regarding demand charges following the schedule provided last year wherein DOE was to pay TVA $311 million on October 1, 1989, and $160 million on October 1, 1990? Have any changes occurred in the related agreement on TVA purchases of uranium enrichment services from DOE?

Mr. Runyon: The TVA-DOE settlement provided for DOE to pay TVA $311 million on October 1, 1989. However, DOE paid TVA only $253 million on October 1, 1989, leaving a balance of $58 million owed to TVA. On November 27, 1989, DOE paid the full $58 million plus late payment charges of $753,224.90. The settlement also provides for DOE to pay $160 million on October 1, 1990.

No changes in the TVA/DOE enrichment services contract or in TVA's commitment to DOE for enrichment services have occurred since the agreements reached associated with the demand charge settlement agreement.

FLOODPLAIN MANAGEMENT

Mr. Myers: How many general floodplain management-related requests did TVA respond to in fiscal 1989?

Mr. Runyon: In fiscal year 1989 TVA responded to over 1,300 requests for floodplain management technical support and for general flood and floodplain management information. Requests came from local officials, planners, engineers, developers, lenders, real estate agents, insurance agents, and private citizens in about 150 watershed communities. This assistance represents a long-term effort to reduce flood damage within the Tennessee River watershed consistent with the TVA Act and consisted of:

- Computing site-specific flood elevation or floodway data.
- Performing engineering analyses of the impact on flood levels from proposed floodplain development.
- Assisting representatives of local governments in selecting flood damage reduction measures suitable for siting specific development in flood-prone areas consistent with the flood hazard there.
- Advising and training local officials in interpreting and using detailed flood data and administering local floodplain regulations in an effort to encourage local governments to better use their regulatory authority for floodplain management. (This activity is essential due to turnover among local officials and their general lack of expertise in flood damage reduction measures.)
- Conducting public education activities to increase awareness of flood hazard areas and improve the understanding of flood risk so that better-informed decisions can be made on the use of flood-prone lands. (This is particularly important downstream and adjacent to the reservoirs where the agency may not have landrights to control development but where such development may threaten safe reservoir system operation.)
- Providing detailed flood hazard data, information on past floods, and published materials on flood risk. (The information and data provided is that generally not available through other agencies or engineering consultants in the Valley region.)

NUCLEAR OPERATIONS

Mr. Myers: Please update the Subcommittee on the status of operations at all TVA nuclear facilities?

Mr. Runyon: Sequoyah Unit 1 is currently preparing for its forth refueling outage scheduled to begin March 16,1990. Unit 2 is operating at 100% power and 108 days of continuous operation. Browns Ferry Unit 1 current restart date is projected to be January 1995. Unit 2 current restart date is projected to be summer 1990. Unit 3 current restart date is projected to be January 1993. Watts Bar Unit 1 goal is commercial operation in early Fiscal 1992. Unit 2 schedule is currently under development. Bellefonte comprehensive study on remaining workscope and cost is being performed by a Nuclear Power task force.

LAKE IMPROVEMENT PLAN

Mr. Myers: Please explain the TVA Lake Improvement Plan.

Mr. Runyon: The Lake Improvement Plan is TVA's response to new and evolving demands on the Tennessee Valley's water resources. A Draft Environmental Impact Statement on this proposal ws issued in January. Two major changes to TVA operations are being considered: improved minimum flows and aeration of releases through TVA dams to improve water quality throughout the Tennessee River system, and maintaining higher lake levels through August 1 to support economic growth based on tourism and recreation in tributary areas.

Proposed minimum flows and aeration of releases would result in these benefits: recovery of about 170 miles of habitat lost from intermittent drying of the river bed below TVA tributary dams; dissolved oxygen improvements sufficient to promote the growth and diversity of aquatic communities, possibly including reestablishment of some species now listed as endangered; and improved recreational opportunities and increased potential for economic development in riverfront communities.

Increased minimum flows would cost about $50,000 a year (the value of the hydropower production that would be lost). Aeration equipment would cost about $44 million to purchase and install, and about $3.3 million a year to maintain and operate.

Holding tributary lake levels until August 1 is expected to: increase recreation visitation by about 18 percent; improve the scenic beauty of affected reservoirs, making them more attractive for residential development; increase the survival rate of young fish by providing more food and cover; and improve navigation on the lower Ohio and Mississippi rivers by increasing water depths during their low flow period.

Holding lake levels until August 1 would require about 50 megawatts in replacement capacity, which could be constructed for about $37 million. Annual hydropower energy losses would vary with rainfall, averaging about $2.4 million a year (including the $50,000 energy loss for minimum flows). The proposed implementation strategy would assure that hydropower is available to respond to critical power system needs without significantly affecting lake levels.

Because of the importance of the Tennessee River system to the region's people, TVA is seeking public comment on these proposed changes and the options for financing these improvements at a series of 12 public meetings across the Tennessee Valley. A member of the TVA Board or of TVA's Management Committee is attending each meeting to hear first-hand the concerns of lake users. Written comments also are encouraged. Following the issuance of a Final Environmental Impact Statement, the study's final recommendations will be presented to the TVA Board this summer or fall.

MATCHING FUNDS

Mr. Myers: Do you mind expanding on the record here and indicating how you get matching dollars and how you have to have some seed money to start and to keep your base there?

Mr. Runyon: Mr. Myers, let me say up front that the major work of the National Fertilizer & Environmental Research Center is to develop technology needed to help provide secure food sources for the Nation at economical prices and provide it in an environmentally acceptable way. You are correct in that we have to have a core base for the research and development programs at Muscle Shoals. In addition to the Federal funding needed for this program, we have been actively seeking additional funding from the private sector and other government agencies for the past several years.

Matching funding from the private sector has increased from about $300,000 in 1981 to almost $700,000 in 1989. We expect to receive about $1.6 million in 1990 and $2.3 million in 1991. It is interesting to note that the $700,000 from the private sector in FY 1989 represented more than sixty individual contracts. In many instances, these agreements provided for cost sharing between the individual company and TVA. We enter into the cost-sharing agreements when it is clear that there are benefits to both the individual company and TVA.

In instances where the benefits of the work accrue largely to the individual company, we insist that the company pay the full cost for the service. In addition to these contractual agreements with the private sector, we are implementing a patent/license policy that charges for use of NFERC technology. This reverses a long-time policy of granting free use of licenses to use this technology. We are also conducting programs to market our technical services to fertilizer companies. In the environmental area, we are conducting site assessments on a fee basis for fertilizer companies across the country. As we develop new technologies in the environmental area, we will target that to industry firms. We are also charging for publications and other services that were previously provided at no cost.

We have been more successful in obtaining funds by assisting other government agencies. Our total reimbursables from other government agencies has increased from $1.4 million in 1981 to $7.7 million in 1989. We expect to approach $10 million in 1990 and 1991. A major part of this work has been assisting the Department of Defense in developing means for safely disposing of chemical wastes at various arsenals or other military facilities. This work has much application to fertilizer manufacturers and dealers across the country. We also do contractual work for the Department of Energy and the U.S. Agency for International Development where our expertise in engineering and scientific advances can benefit their programs. We have done a small amount of work for the Environmental Protection Agency and look forward to more cooperative arrangements with EPA in the environmental area.

We have also been successful in leveraging TVA funds through cooperative agreements with universities across the country. In 1981, for example, the TVA contribution to contractual agreements was about $600,000, and university contributions totaled over $1 million. This kind of input is helpful in keeping a funded base for core research and development activities and stimulates investment in research and development projects onsite across the country.

MARVIN RUNYON, CHAIRMAN
TENNESSEE VALLEY AUTHORITY
TESTIMONY BEFORE THE
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
COMMITTEE ON APPROPRIATIONS
U.S. HOUSE OF REPRESENTATIVES
FEBRUARY 28, 1990

Mr. Chairman, we're here today to present the Administration's budget request for the Tennessee Valley Authority for fiscal year 1991. A copy of the budget request has been submitted to you for the record. The Administration is asking for $91.3 million. This morning, we want to give you a brief overview of what we did last year and where we see TVA headed in the 1990s.

TVA has made great progress in the last few years, and we see a bright future. Last year, we met the second year of our three-year, rate stability goal, and that means a savings for every resident and business in the Tennessee Valley region. This year, we expect to meet the third year of our goal, and TVA's top managers have challenged themselves to extend our rate stability goal for at least a fourth year.

We've continued to make TVA more streamlined and competitive, and the people of the Tennessee Valley have benefited from a 30 percent reduction in overhead costs in our appropriated programs. Refinancing our long-term debt last year will save TVA power customers almost $150 million each year in interest payments. Last spring, our flood-control staff prevented $4 million in potential flood damage from record rains. We achieved record power production in 1989 from our Sequoyah Nuclear Plant, and our fossil plants continued to be among the most efficient and productive in the Nation.

As we now enter a new decade, we see even more opportunities for TVA to renew its mission of helping to improve the quality of life for the people we serve. In the 1990s, we're concentrating on five areas:

First, providing environmental leadership,
Second, stimulating economic growth,
Third, maintaining a quality workforce and workplace at TVA,
Fourth, emphasizing service to customers and communities,
And fifth, achieving excellence in nuclear power operations.

Mr. Chairman, this is our agenda for the 1990s.

Now, let me provide some details about what we expect to achieve. First of all, we'll strive for environmental leadership, and that means going beyond mere compliance with laws and regulations. Leadership means helping to solve problems in innovative ways and demonstrating to others how environmental challenges can be met. Last month, we changed the name of TVA's National Fertilizer Development Center to the National Fertilizer & Environmental Research Center. This change in name really underscores the change in program emphasis that's taken place at the Center.

TVA will continue to take a leading role in working with farmers and developing and testing environmentally safe ways to improve soil fertility. But the contributions of TVA researchers already extend beyond agricultural applications. Symbolically, the name change reflects a broader concern for environmental matters in every area of TVA's responsibility.

TVA always has been a national laboratory for a wide range of environmental concerns. Today, we're helping to solve a variety of air, water, land, and waste-management problems. For example, as one of our Nation's largest consumers of coal, TVA is a leader in developing and testing pollution-control and clean-coal technologies. We've cut our sulfur dioxide emissions in half and reduced particulate emissions by 93 percent. All of our plants are in compliance, and the regulated emissions at most of the plants are well below the levels allowed.

The second area we're focusing on in the 1990s is stimulating economic growth. We're basing our business operations and planning on helping to encourage quality economic growth and create jobs. Stabilizing power rates has already provided a boost to economic growth. Since we announced TVA's rate stability goal, more than 500 firms have made plans to locate or expand in the Tennessee Valley. And that adds up to more than $6 billion in new investments and over 30,000 new jobs. We've also introduced rate incentives that are tied to the number of new jobs created.

Our third area of focus in the 1990s is maintaining a quality workforce and workplace at TVA. That means stabilizing our workforce, expanding employee involvement, and improving productivity. We've already gone a long way toward achieving excellent efficiency and productivity at TVA, but we must do more. TVA must be recognized as an excellent place to work, where employees are committed to their jobs, their work is challenging, and the work environment is inviting. We've already established new compensation policies that are helping us attract and retain highly qualified staff. We're implementing a new management philosophy, and we're working on long-range strategies for labor relations and minority development. We're also considering a flexible benefits package, dependent care programs, and fitness centers, among others.

We're determined to make TVA the most competitive electric utility in North America and the most efficient and productive agency in Federal service, and we'll do it with the help of our highly committed employees.

Our fourth area of emphasis for the 1990s stresses service to our customers through a consumer-first philosophy that's practiced by all TVA employees. That means we won't take our customers, communities, or other constituencies for granted. Last year, for example, we continued to improve our record of reliability in transmission service, providing power to our customers more than 99.99 percent of the time. And even when service was interrupted, the average time out of service was only about 13 minutes.

We achieved that level of reliability even though a series of tornadoes in North Alabama last November inflicted the second largest amount of damage ever on our transmission system. During our disaster relief operations, I went to north Alabama to meet with State and local leaders, TVA power distributors, and our emergency crews. Many of those crew members worked 36-hour shifts in snow and freezing rain. And while they were restoring power to our customers, they were providing a working definition of customer service for all of us.

Finally, TVA's fifth area of focus in the '90s is achieving excellence in nuclear power operations. That means operating TVA's plants in a safe, efficient, and quality manner. Earning the public's confidence is essential to our success in nuclear power. Our hydro and fossil plants continue to be among the top power plants in the Nation. And our goal is for TVA's nuclear plants to be among the top performers in the industry.

Both reactors at our Sequoyah Nuclear Plant set performance records last year, and that reflects the quality of our recovery program. In fact, in a global comparison of nuclear plants that generated the most electricity last year, Unit 1 at Sequoyah ranked second in the United States and eighth in the world.

This year, we're working to return another reactor to service at Browns Ferry Nuclear Plant. We expect all TVA's nuclear units to be as efficient and reliable as the best in the industry, and, above all, we expect them to be safe.

Nuclear power also is making a valuable contribution to our clean-air initiatives. If TVA had built coal-fired plants instead of nuclear plants for additional capacity, our sulfur dioxide emissions would be about one million tons higher each year, or almost double current emissions.

Mr. Chairman, by focusing on the areas I've mentioned, TVA is helping the people of the Tennessee Valley and the Nation to meet the challenges of this new decade. And in making those contributions, I'm confident that we'll reach our goal of being the most competitive electric utility in North America and the most efficient and productive agency in Federal service. We realize that these goals are ambitious, but we're convinced that they're realistic. And with the support of Congress and the citizens we serve, we'll achieve them.

Mr. Chairman, we greatly appreciate the support that the members of this Subcommittee and your colleagues have shown to TVA in the past, and we'll work hard to continue to merit your support. Your ongoing interest in our programs is a real expression of your concern for the needs of the people of the Tennessee Valley and the Nation.

On behalf of TVA and all the people we serve, thank you.

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C. H. DEAN, JR., DIRECTOR
TENNESSEE VALLEY AUTHORITY
TESTIMONY BEFORE THE
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
COMMITTEE ON APPROPRIATIONS
U.S. HOUSE OF REPRESENTATIVES
FEBRUARY 28, 1990

Good morning, Mr. Chairman and members of this subcommittee.

Today marks my last appearance before you. I've served on the Board of Directors of TVA for almost nine years, and my term expires this May. It's been a challenging nine years for TVA, at times stressful, at times exciting, but always fascinating.

During my tenure at TVA, I've gotten to know the members of this subcommittee. And I appreciate the complexities of your responsibilities and the service you provide for TVA, the citizens of the Tennessee Valley, and the Nation. Since most of TVA's budget comes from power revenues, it's sometimes easy to think that the small percentage that comes from appropriations is inconsequential. But it's our appropriated programs that define TVA's character as one of the best known and most successful resource development agencies in the world.

Let me briefly mention three examples that demonstrate where TVA made a difference with its appropriated programs. Each example in its own way is making an important contribution to our Nation's heritage.

As we look around us in the late 20th century, we see many societal values in chaos. Perhaps this is because we are no longer primarily an agricultural nation, and we are losing our appreciation for traditional values as we lose touch with the natural world around us.

For more than ten years, TVA's environmental education program has been setting up a network of university-based centers which are helping to restore the traditional values associated with the natural world. The network is reaching thousands of school children every year. And last year, the Alliance for Environmental Education selected the program to be the model for a national network of environmental education centers.

Another progressive example is the stewardship programs that this subcommittee reintroduced into our budget during the last two years. TVA's lands and facilities are part of our legacy to future generations. Thanks to you, we are making badly needed repairs and improvements to the Federal properties entrusted to us. With the continuation of our stewardship programs, we will be able to pass on to the next generation a legacy of real and enduring value.

Finally, I want to mention the bald eagles at Land Between the Lakes. Over the years, TVA has helped return a variety of species to the wild. But of all those projects one of the most exciting has been the restoration of bald eagles to Land Between the Lakes. Forty-four eagles were raised from captivity and released during TVA's eight-year program, and many of them nested.

This winter, our resident population is more than 150 birds. And one of the Kentucky nests was the first successful nest in the State known to produce offspring in 40 years. The bald eagle, of course, is the symbol of our great Nation. To see the eagle once again soaring over the lakes and fields of the Tennessee Valley gives us great hope for a brighter tomorrow for all America.

Mr. Chairman, each of the appropriated programs I've just mentioned exists because this subcommittee has taken a strong interest in them. TVA has made a difference through these programs, and because of your help, they are as much your legacy as ours. I am grateful for the support you have shown us over the years. Although this is my last appearance before you, I will continue to follow the work of this subcommittee with great interest. And I wish each of you well in the years ahead.

Thank you.

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JOHN B. WATERS, DIRECTOR
TENNESSEE VALLEY AUTHORITY
TESTIMONY BEFORE THE
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
COMMITTEE ON APPROPRIATIONS
U.S. HOUSE OF REPRESENTATIVES
FEBRUARY 28, 1990

Thank you, Mr. Chairman.

Last month in his State of the Union address, the President reminded us that one of the most important legacies we owe future generations is "the safekeeping of America's precious environmental inheritance." At TVA, we take our environmental responsibilities seriously. In fact, as Marvin just explained, the environment has become one of our top priorities for the 1990s.

Today, thanks to the generous support of this Subcommittee, we have strong programs in air, land, and water resources. One of our most critical concerns, and the one that has become my personal priority as a TVA Director, is finding ways to better manage the Tennessee River system for the maximum benefit of all our constituencies. We are committed to making the Tennessee River and its tributaries the best-managed river system in the world.

Mr. Chairman, allow me to briefly summarize some of the things we are doing to achieve that goal. Over the last couple of years, we have been conducting the most comprehensive study in 50 years of the way TVA operates the River system. We just released a draft of the study, titled the Lake Improvement Plan, and we are currently holding public meetings and gathering written comments to help guide our final decision.

Under the original TVA Act navigation, flood control, and power production were the primary purposes for our river system. But over the years, water quality and recreation have become increasingly important. Today aquaculture, water supply, aquatic habitat, irrigation, and power plant cooling are also major concerns. So, we commissioned the study to see if new operating priorities were needed.

The plan contains a number of alternative management proposals affecting water quality, lake levels, and recreation. Even though the plan is still in draft, it has been broadly distributed and, I am told, already is altering the way other Federal and State agencies view water policy.

Mr. Chairman, if we expect the Tennessee River system to be the best managed in the world, we have to solve the problems of low dissolved oxygen and nonpoint source pollution. Already, we have taken some important steps. We are testing several highly innovative techniques to put oxygen back into the waters below our dams. We also have several projects demonstrating how to contain potential nonpoint source pollution. These demonstration projects encourage others to try the techniques themselves.

Navigation raises another serious concern that we must correct. Navigation is expanding on the Tennessee River due in large part to the opening of the Tennessee-Tombigbee Waterway. Unfortunately, opportunities to move cargo in and out of east Tennessee are hampered by small locks on three upstream dams. Barge delays are growing steadily worse. We estimate that by the year 2000, the average tow will have to wait more than three days at Chattanooga just to get through the Chickamauga Lock.

TVA is also monitoring water quality, studying the impact of air pollutants on our lakes, controlling aquatic weeds and insects, and offering flood control assistance. These are just some of the activities we are undertaking to make the Tennessee River the best-managed river system in the world. The techniques we are developing can be applied in our region, the Nation, and the world.

Overall, TVA has done a good job of managing the Tennessee River for the past half century. We have learned many important lessons, we have shared what we learned, and we are applying those lessons to the problems of today. TVA is a national laboratory. We test new ideas, make them work, and then pass the results on to others.

By supporting our work, Mr. Chairman, you are not simply approving another item in the Federal budget, you are continuing our investment in the search for a better way of life, not just for the Tennessee Valley, but for all America and the world.

Thank you.

# # #

TENNESSEE VALLEY AUTHORITY
BUDGET PROGRAM

FOR THE FISCAL YEAR ENDING
SEPTEMBER 30, 1991

SUBMITTED TO CONGRESS
JANUARY 1990

Commencing in 1988 TVA began a fundamental review of its appropriated functions with the purpose of determining the best focus for future activities and resources. Evolution of program direction was integrated into a revised organizational structure for the management and accountability of appropriated activities. By FY 1990 a basic redefinition of budgetary accounts for all program areas was implemented and fully integrated into the annual appropriation process for FY 1991 funds.

This process and the objective of program review and reexamination of TVA's appropriated functions will be ongoing, but five major areas have emerged reflecting the separate thrusts of TVA's mission: Stewardship, Water and Land, Land Between The Lakes, Rural Development, and National Fertilizer Development Center.

Stewardship functions encompass the broad array of public lands, associated physical facilities, and natural resources in connection with research, development, operation, and management activities conducted by the agency to fulfill its mission. In order to assure present day use and the availability of these resources and facilities for future generations adequate stewardship is required to preserve and enhance this Federal investment.

The Water and Land function recognizes that, in order for TVA to aid in the proper use, conservation, and development of the natural resources of the region, TVA must conduct activities which go beyond the care of its own resources and facilities. To fulfill this responsibility, TVA is actively involved in projects which are designed to better understand and use the Valley's resources. These projects serve to expand knowledge of interrelationships among resources and their uses; to promote wise conservation, development, and use of the region's air, water, lands, forests, and wildlife; and to provide examples for implementation in other regions.

The Land Between The Lakes provides outdoor recreation to users from virtually all states. In addition it currently supports environmental education to the general public and professionals, conducts demonstrations that have national significance, and seeks to make a positive impact on the regional economy.

The Rural Development function seeks to assist in resolving the problems of entrenched economic inequity that persist in many rural areas. TVA believes this effort requires addressing via partnerships the "seven critical needs" of rural economic development which strengthen rural economic leadership, maintain a competitive manufacturing sector, expand the service sector, [illegible] natural resource-based employment, strengthen rural infrastructure, and [illegible]

The National Fertilizer Development Center functions to develop and introduce fertilizer technology that will help the Nation's farmers increase production of food and fiber in an economical and environmentally safe manner.

The following table provides a crosswalk from previous TVA budget formats to these five functions reflected in the FY 1991 budget proposal.

	In Thousands of Dollars							
				1991 Revised Presentation				
	1989 Actual	1990 Estimate	1991 Estimate	Stewardship	Water & Land	LBL	Rural Dev	NFDC
CAPITAL INVESTMENT								
Columbia Dam and Reservoir............	153	256	260	-	260	-	-	-
Dam safety modifications.............	2,764	5,669	5,500	5,500	-	-	-	-
Additions and improvements...........	1,831	2,400	2,103	2,103	-	-	-	-
Lock replacement......................	-	449	449	-	44'	-	-	-
Land and forest resources............	19	99	205	205	-	-	-	-
Land Between The Lakes facilities....	65	99	1,469	469	-	1,000	-	-
Fertilizer test facilities...........	3,392	6,804	6,095	6,095	-	-	-	-
General facilities....................	-12	1,513	1,246	1,246	-	-	-	-
Total capital investment.........	8,212	17,297	17,327	15,618	709	1,000	-	-
OPERATING EXPENSES								
Natural Resources								
Water resources......................	5,512	7,160	6,346	4,752	1,594	-	-	-
Reservoir system operations..........	26,369	30,976	33,493	32,459	1,034	-	-	-
Land and forest resources...........	3,826	3,571	2,967	2,223	744	-	-	-
Resource management and development support...........	3,395	3,420	1,777	878	899	-	-	-
Land Between The Lakes.............	6,615	6,972	7,977	6,629	-	1,348	-	-
Total Natural Resources..........	45,717	52,115	52,560	46,941	4,271	1,348	-	-
Economic Resources....................	15,559	10,375	-	-	-	-	-	-
Agricultural Institute...............	3,911	4,433	-	-	-	-	-	-
National Fertilizer Research and Development								
Fertilizer research................	15,196	14,920	12,600	500	-	-	-	12,100
Technology introduction............	10,689	10,531	8,000	-	-	-	-	8,000
Hardwood research and testing......	2,739	2,740	-	-	-		-	-
Total National Fertilizer Research and Development.........	28,624	28,199	20,600	500	-	-	-	20,100
General Services......................	994	1,240	815	815	-	-	-	-
Total operating expenses...........	94,805	104,370	73,975	48,256	4,271	1,348	-	20,100
Total appropriations..............	103,017	121,662	91,302	63,874	4,980	2,348	-	20,100
FINANCING								
Appropriations.......................	103,000	121,000	91,302	63,874	4,980	2,348	-	20,100
Sequestration (P.L. Law No. 101-239).	-	-1,694	-	-	-	-	-	-
Unobligated balance brought forward..	2,378	2,361	-	-	-	-	-	-
Unobligated balance carried forward	-2,361	[illegible]	[illegible]	-	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Summary of Budget Financed from Appropriations

	In Thousands of Dollars		
	1989 Actual	1990 Estimate	1991 Estimate
STEWARDSHIP			
Capital investment	4,144	11,168	15,618
Operating expenses	34,267	41,078	48,256
Total stewardship	38,411	52,246	63,874
WATER AND LAND			
Capital investment	676	1,297	709
Operating expenses	9,030	10,238	4,271
Total water and land	9,706	11,535	4,980
LAND BETWEEN THE LAKES			
Capital investment	-	-	1,000
Operating expenses	3,414	3,398	1,348
Total Land Between The Lakes	3,414	3,398	2,348
RURAL DEVELOPMENT			
Capital investment	-	-	-
Operating expenses	19,470	21,457	-
Total rural development	19,470	21,457	-
NATIONAL FERTILIZER DEVELOPMENT CENTER			
Capital investment	3,392	4,832	-
Operating expenses	28,624	28,199	20,100
Total National Fertilizer Development Center	32,016	33,031	20,100

Summary of Budget Financed from Appropriations (Continued)

	In Thousands of Dollars		
	1989 Actual	1990 Estimate	1991 Estimate
TOTAL APPROPRIATIONS			
Capital investment	8,212	17,297	17,327
Operating expenses	94,805	104,370	73,975
Total appropriations	103,017	121,667	91,302
FINANCING			
Appropriations	103,000	121,000	91,302
Sequestration (P.L. Law No. 101-239)	-	-1,694	-
Unobligated balance brought forward	2,378	2,361	-
Unobligated balance carried forward	-2,361	-	-
Total financing	103,017	121,667	91,302

Summary of Budget Financed from Nonpower Proceeds

	In Thousands of Dollars		
	1989 Actual	1990 Estimate	1991 Estimate
STEWARDSHIP			
Capital investment	775	711	-
Operating expenses	1,648	980	1,172
Total stewardship	2,423	1,691	1,172
LAND BETWEEN THE LAKES			
Operating expenses	1,529	1,577	450
Total Land Between The Lakes	1,529	1,577	450
NATIONAL FERTILIZER DEVELOPMENT CENTER			
Capital investment	1,076	729	2,691
Operating expenses	21,172	19,141	6,584
Total National Fertilizer Development Center	22,248	19,870	9,275
REIMBURSABLE SERVICES	56,511	40,549	31,993
OTHER	849	-	-
Total financed from nonpower proceeds	83,560	63,687	42,890

Summary of Budget Financed from Nonpower Proceeds (Continued)

	In Thousands of Dollars		
	1989 Actual	1990 Estimate	1991 Estimate
FINANCING			
Balance brought forward	2,839	3,783	3,379
Current proceeds:			
Stewardship	1,508	1,155	1,172
Water and land	198	200	200
Land Between The Lakes	1,529	1,577	450
National Fertilizer Development Center	19,787	15,050	4,938
Reimbursable services	56,511	40,549	31,993
Other	5,172	4,952	4,485
Total current proceeds	84,705	63,483	43,238
Payments to the Treasury	-201	-200	-200
Balance carried forward	-3,783	-3,379	-3,527
Total financing	83,560	63,687	42,890

Summary of Budget Financed from Power Proceeds and Borrowings

	1989 Actual	1990 Estimate	1991 Estimate
	In Millions of Dollars		
CAPITAL INVESTMENT			
POWER SUPPLY AND USE			
Watts Bar Nuclear Plant	512.6	468.2	526.3
Bellefonte Nuclear Plant	-0.9	4.0	3.0
Subtotal	511.7	472.2	529.3
Transmission system facilities	88.5	98.8	105.0
Acquisition of fuel reserves	-5.3	1.0	0.8
Additions and improvements at power facilities	520.6	566.1	575.8
Loans and other long-term receivables	-27.0	-8.1	-6.3
Nuclear fuel	-2.1	-13.2	-7.3
Subtotal	1,086.4	1,116.8	1,197.3
GENERAL SERVICES			
General facilities	-9.0	10.4	10.8
Total capital investment	1,077.4	1,127.2	1,208.1

Summary of Budget Financed from Power Proceeds and Borrowings (Continued)

	In Millions of Dollars		
	1989 Actual	1990 Estimate	1991 Estimate
EXPENSES			
POWER SUPPLY AND USE			
Power operations	4,487.3	4,472.6	4,374.3
Allocations of multipurpose reservoir operations	8.7	10.1	10.5
Total obligations	4,496.0	4,482.7	4,384.8
INVESTMENT FUNDS			
Investment and interest (associated with bond retirement and decommissioning funds)	-659.1	33.0	37.1
INVENTORIES AND DEFERRED ITEMS			
POWER SUPPLY AND USE			
Power inventories	-27.0	7.0	14.9
Unamortized investment in canceled nuclear plants	-273.3	-273.3	-271.6
Nuclear plant decommissioning	-46.9	-52.6	-59.4
Nuclear plant compliance costs	80.4	76.3	83.8
COC Lease	-28.5	-28.5	-19.0
Other deferred items	31.0	141.4	157.9
Total inventories and deferred items	-264.3	-129.7	-93.4
Total budget financed from power proceeds and borrowings	4,650.0	5,513.2	5,536.6

Summary of Budget Financed from Power Proceeds and Borrowings (Continued)

	In Millions of Dollars		
	1989 Actual	1990 Estimate	1991 Estimate
FINANCING			
Balance brought forward	10,803.5	10,692.2	10,579.0
Current proceeds:			
Power operations	5,400.0	5,462.9	5,431.4
Sale of retired plant	13.2	22.7	10.6
Miscellaneous receipts	12.9	1.7	1.9
Total current proceeds	5,426.1	5,487.3	5,443.9
Payments to the Treasury:			
Repayment of appropriations investment	-20.0	-20.0	-20.0
Return on appropriations investment	-67.4	-67.3	-65.5
Total payments to the Treasury	-87.4	-87.3	-85.5
Provision for debt retirement	-800.0	-	-
Balance carried forward	-10,692.2	-10,579.0	-10,400.8
Total financing	4,650.0	5,513.2	5,536.6

STEWARDSHIP

Program Financing Schedule

APPROPRIATIONS	In Thousands of Dollars 1989 Actual	 1990 Estimate	 1991 Estimate
Capital investment:			
Reservoir system facilities	1,402	1,513	1,219
Dam safety facilities	2,670	5,972	6,384
Land resources facilities	19	99	205
Land Between The Lakes facilities	65	99	469
National Fertilizer Development Center facilities	-	1,972	6,095
General facilities	-12	1,513	1,246
Total capital investment	4,144	11,168	15,618
Operating expenses:			
Reservoir system operations	18,973	23,820	26,581
Dam safety operations and maintenance	6,746	6,675	7,508
Water resource management	2,702	4,732	4,752
Land and forest resource management	2,406	2,138	2,223
Land Between The Lakes	3,192	3,576	6,629
National Fertilizer Development Center	-	-	500
General services	248	137	63
Total operating expenses	34,267	41,078	48,256
Total appropriations	38,411	52,246	63,874

STEWARDSHIP

Program Financing Schedule (Continued)

POWER PROCEEDS	In Thousands of Dollars 1989 Actual	 1990 Estimate	 1991 Estimate
Capital investment:			
Reservoir system facilities..	635	324	141
Dam safety facilities..	865	993	1,435
Land resource facilities..	-	112	-
Total capital investment..	1,500	1,429	1,576
Operating expenses:			
Reservoir system operations..	6,068	8,186	7,271
Dam safety operations and maintenance..............................	3,029	2,408	2,604
Total operating expenses..	9,097	10,594	9,875
Total power proceeds..	10,597	12,023	11,451

STEWARDSHIP

Program Financing Schedule (Continued)

NONPOWER PROCEEDS	In Thousands of Dollars 1989 Actual	 1990 Estimate	 1991 Estimate
Capital investment:			
Reservoir system facilities	-	290	-
Land resources facilities	775	421	-
Total capital investment	775	711	-
Operating expenses:			
Reservoir systems operations	1,214	570	747
Land Between The Lakes	434	410	425
Total operating expenses	1,648	980	1,172
Total nonpower proceeds	2,423	1,691	1,172
Total program financing	51,431	65,960	76,497

STEWARDSHIP

Mission:

TVA has been entrusted with a broad array of public lands, associated physical facilities, and natural resources in connection with research, development, operation, and management activities conducted by the agency to fulfill its mission. In order to assure present day use and the availability of these resources and facilities for future generations adequate stewardship is required to preserve and enhance this Federal investment. This responsibility includes maintaining a system of dams, reservoirs, and navigation facilities; refurbishing outmoded public facilities and other structures; performing adequate routine and cyclic maintenance; and maintaining and managing over 300,000 acres of public land and 11,000 miles of shoreline efficiently and in an environmentally sound manner.

Goals:

- o Manage and maintain the TVA reservoir system and water resources at standards of quality and quantity that ensure these resources continue to meet basic TVA objectives.
- o Improve the standard of operation and maintenance at existing TVA facilities to meet public expectations of appearance and function, long-term economic utility, and safety.
- o Manage, maintain, or preserve TVA land resources to support a diversity of uses at a standard that exemplifies responsiveness to the changing needs of the people of the region.
- o Remove and complete environmental cleanup of abandoned production facilities on the NFDC reservation. Chemical plants scheduled for shutdown during FY 1990 will be decommissioned and made ready for demolition.

Stewardship - Reservoir System Operation

	In Thousands of Dollars		
	1989 Actual	1990 Estimate	1991 Estimate
Appropriations........................	20,375	25,333	27,800
Power proceeds........................	6,703	8,510	7,412
Nonpower proceeds....................	1,214	860	747
Total obligations....................	28,292	34,703	35,959

Fiscal Year 1991 Proposed Funding:

Capital Investment

Navigation additions and improvements:

Install two barge mooring cells along the downstream approach channel to Watts Bar lock.

Initiate upgrading of Pickwick lock electrical service system.

System additions and improvements:

Visitor Facilities - Three existing recreation/visitor facilities will be improved to meet existing use pressures.

Miscellaneous Equipment - Equipment used in grounds and facilities maintenance, such as tractors and groundskeeping attachments, workboats, self-propelled and riding mowers, and power handtools, will be purchased.

Maintenance Facilities - Construction of proper storage facilities and maintenance building additions will be accomplished, thereby providing increased operating safety and efficiency.

Operating Expenses

Navigation operations:

Pay for electricity to operate the locks.

Plan and coordinate navigation capital additions and improvements, maintenance, and interface with the U.S. Army Corps of Engineers (USACE), Coast Guard, and waterway users.

Perform TVA nondam safety maintenance at the Tennessee River system locks.

Service secondary channel navigation aids, boat hazard markers, and navigation staff gages.

Computerize engineering survey data associated with buoy reference ranges.

Update navigation charts and maps.

Flood hazard analysis:

Evaluate flooding effects of major storms and simulate potential extreme storms for flood operations training.

Maintain the computerized flood information management system; respond to requests for flood information; and maintain basic analytical capability to define future flooding.

Computerize and update computations of natural floods to provide near real-time estimates using current hydrologic computational methods and procedures to guide reservoir operations in time of flood.

Review land management tract designations for consistency with flood damage potential to control reservoir development.

Water control operations:

Operate TVA's integrated multipurpose reservoir system in a manner consistent with the TVA Act to reduce floods within the Tennessee Valley and on the lower Ohio and Mississippi Rivers, to ensure adequate depths of flow for all navigable channels along the Tennessee and its tributaries, and to regulate the storage and release of water for hydropower production. Manage the system to provide benefits for secondary purposes, such as recreation and water quality, and for special operations as consistent with the primary purposes.

Complete the repair and/or replacement of substandard components of the hydrologic gaging networks. Complete replacement of remaining observers with automated gages to complete full automation of the data collection networks.

Conduct studies to improve operations and derive more benefits from the reservoir system, with special emphasis on implementing recommendations from the Reservoir Operation and Planning Review.

Aquatic plant and vector management program:

Perform mosquito control at critical areas on nine mainstream and 10 tributary reservoirs; monitor populations routinely at 115 index stations; maintain approximately 150,000 linear feet of drainage ditches and control about 600 acres of marginal vegetation; perform about 50,000 acre-treatments of larvicidal applications and about 80,000 acre-treatments of adulticidal control; address all complaints and requests for treatment; and monitor resistance to pesticides in mosquito populations.

Perform about 9,300 acre-treatments on aquatic weeds on 11 reservoirs; monitor their presence on 11 reservoirs; and evaluate alternative herbicidal compounds and special water level management schemes.

Dam reservation operation and maintenance:

Quality operation of all 36 multipurpose dam reservations will be accomplished, with all recreation areas and visitor facilities associated with these areas opened and maintained to acceptable standards.

Reservoir recreation area operation:

Quality maintenance levels commensurate with public expectations will be achieved at all 66 developed reservoir recreation areas and stream access sites. Over 150 informal recreation areas and problem dump sites will be monitored and maintained to prevent unsanitary conditions and degradation of land resources.

Reservoir facility maintenance:

Cyclic maintenance needed to keep facilities in good repair and appearance will be performed. The backlog of deferred facility maintenance, repair, and rehabilitative needs will also be addressed at public recreation areas and dam reservations.

Work will include repaving roads and parking areas; corrective and safety modifications for roads and grounds; repair, reroofing, and painting of structures; renovation of fishing berms, boat ramps, beaches, picnic areas, campsites, and visitor facilities to improve safety and visitor access; modification of buildings and facilities for handicap accessibility; repair/replacement of signs; and maintenance of earthfill embankments of highway and railroad levees on several projects.

Plant protection:

Public Safety Officers will be stationed at 18 multipurpose projects where they will protect the facilities from fire, theft, vandalism, sabotage, and civil disorder. Information about TVA programs and facilities will also be provided to visitors on a limited basis.

Property and land rights administration and protection:

Land and landrights along 11,000 miles of shorelines will be managed and Section 26a of the TVA Act administered. Some 2,000 Section 26a transactions and 250 land use requests will be handled. Sixty TVA and other Federal environmental impact statements, regulations, and legislative proposals will be reviewed and processed. More intensive review, including additional field survey work of some particularly sensitive land use proposals and Section 26a requests, will be conducted to ensure adequate compliance.

Increased emphasis will be placed on the early identification, resolution, and prevention of the escalating number of encroachments and violations affecting TVA land or landrights. Approximately 360 miles of critical property boundaries will be reestablished and maintained. Data will be obtained on nine mainstream reservoirs and along 300 miles of tributary reservoirs to assess the impact of violations and encroachments as to flood hazard and potential damages. Communication with property owners will be improved through the use of public information, and the education of property owners, user groups, and community leaders.

Work will begin on updating and integrating TVA reservoir land ownership records and maps into modern automated computerized mapping systems. Maps, descriptions, and appraisals for land sales and transfers will be prepared. Ocoee River outfitter contracts will be administered and technical assistance provided to watershed development authorities.

Approximately 11,000 acres of agricultural lands will be rented.

A system of test and demonstration sites on TVA lands will be developed to determine and illustrate effective forestry techniques, with emphasis on the natural regeneration of pine stands.

Significantly improve access to TVA forested properties through obtaining entry to land-locked compartments, upgrading of existing forest roads to Best Management Practices standards, and development of road systems in larger compartments.

Implement forestry prescription plans on approximately 1600 acres of reservoir lands.

Maintain and update a Natural Heritage computerized data base and map files containing 17,525 records for endangered species and wetlands distribution information. Some 175 endangered species locality records will be added. These are critically needed for efficiently meeting environmental responsibilities under Federal laws and Executive orders.

Survey 23,000 acres of TVA land for archaeological and historical resources, reversing the trend of falling farther behind inventory schedules. Functioning as national clearinghouse, TVA will develop and install a stabilization technique on an endangered archaeological site and respond to national inquiries.

The Wheeler Reservoir Land Management Plan will be completed, including Board approval, printing, and distribution of the plan.

Begin updates to the Tellico Reservoir Land Management Plan as required by the contract with the local development agency. Develop landrights data for all Tellico lands. Initiate development of a natural resources/environmental data base, (wetlands, archaeology, threatened and endangered species, floodplains, and prime farmland). Initiate land use capability assessments for all TVA property and shoreline strips fronting Tellico Reservoir Development Agency lands.

Initiate reservoir plans for Melton Hill Reservoir, the first of the major tributary reservoirs to undergo a reservoir planning activity including: assembly of an environmental data base (wetlands, archaeology, floodplains, and prime farmland) and landrights data for all Melton Hill TVA property, and encoding of the data in a land information data base.

Maintain 16 backwater protection areas.

Stewardship - Dam Safety Operation and Maintenance

	In Thousands of Dollars		
	1989 Actual	1990 Estimate	1991 Estimate
Appropriations......................	9,416	12,647	13,892
Power proceeds......................	3,894	3,401	4,039
Total obligations............	13,310	16,048	17,931

Fiscal Year 1991 Proposed Funding:

Capital Investment

Project modifications:

Continue modification to Nickajack Dam with the addition of a roller compacted concrete dam and raising of the south embankment in a manner consistent with the Federal Guidelines for Dam Safety. This modification is projected to be completed in FY 1993 at a total cost of $14.5 million, including $12.76 million of appropriations.

Start design and construction for seismic modification to Beech River Dam. This modification will total $5,000,000 (all appropriations) and be completed in FY 1993.

A 1-year project, post-tensioning Fontana spillway blocks to meet maximum credible earthquake standards, is proposed for 1991. Total project cost is $250,000, including $145,000 of appropriations.

Additions and improvements:

Provide for additions and improvements at all power and nonpower dams. This includes the design and installation of replacement power feeder cables to the spillway gates and the purchase and installation of auxiliary diesel generators to raise the spillway gates in case of power failure at the dams.

Continue addition of Bear Creek-Normandy Control System.

Purchase of spillway gate painting equipment.

Operating Expenses

Multipurpose reservoir operations and maintenance:

Provide for seismic, structural, hydrologic and other studies to determine the adequacy of the agency's dams with respect to the present-day design criteria under the Federal Guidelines for Dam Safety. Seismic investigations will be continued on the Tellico and Blue Ridge projects, including site sampling, laboratory tests and report writing.

Emergency preparedness plans will be updated for TVA dams and progress reports will be prepared for FEMA relative to dam safety implementation.

Completion of the Pickwick Dam Safety Analysis Report.

Two emergency preparedness dam safety drills will be conducted.

Coordination of agency's dam safety activities with State, Federal dam safety groups, and agencies.

Dam and embankment settlement and deflection surveys; structural integrity checks; groundwater and seepage observations; operation and maintenance of equipment for structural integrity checks; observation of uplift pressure, pressure cells, groundwater wells, toe drains, gallery drainage, stresses and deformations, flow of springs, and reservoir rim inspections; operation, inspection, and maintenance of control gates at multipurpose and nonpower dams; and inspections, recommending repairs, and preparing reports for the maintenance of dams at Beech River, Tims Ford, Bear Creek, Melton Hill, Nickajack, Normandy, and Tellico. Maintenance repairs are planned at Normandy, Upper Bear Creek, Fort Loudoun, Hiwassee, Fontana, Pickwick and Kentucky Dams.

Support the findings and repairs determined during 13 Class A inspections.

Single purpose facility maintenance:

Settlement and deflection surveys at various locks; inspection and maintenance of navigation locks; reimburse USACE for unwatering Wheeler and Kentucky main locks for inspection; data reduction and management; repair recommendations; and prepare reports related to the inspection and maintenance of TVA locks. Maintenance repairs are planned at Guntersville, Fort Loundoun, Pickwick and Chickamauga locks.

Inspection and maintenance of five flood control dams at the Land Between the Lakes project.

Structural integrity checks, inspection, and maintenance of the two flood control dams at the Bristol project.

Inspection and maintenance of dewatering dikes in the Kentucky and Wheeler Reservoirs, and safety inspection and gate maintenance of Nolichucky Dam.

Provides for necessary maintenance of five bridges financed by the U.S. Department of Transportation and constructed across TVA's Kentucky, Chickamauga, Watts Bar, Fort Loudoun, and Pickwick Landing Dams pursuant to Public Law 79-561 (Section 320 of Title 23, United States Code). That section directs that bridges so constructed become a part of the dam structure and that responsibility for maintaining the bridges be assigned to the agency having custody of the dams.

Stewardship - Water Resource Management

	In Thousands of Dollars		
	1989 Actual	1990 Estimate	1991 Estimate
Appropriations......................	2,702	4,732	4,752

Fiscal Year 1991 Proposed Funding:

Operating Expenses

Water resources and ecological monitoring:

Identify Valley-wide watershed water quality needs and priorities.

Conduct trend monitoring at 12 fixed stations.

Complete water resources issues analysis for two subbasins.

Conduct targeted monitoring on one watershed, establish volunteer monitoring on two reservoirs, and perform biological monitoring on six reservoirs.

Formulate plans with other agencies for reducing pollution loads to TVA reservoirs from watershed sources.

Reservoir water quality management:

Complete water quality status reports for six major reservoirs.

Conduct an assessment of water quality in one reservoir and complete a modeling analysis on one reservoir.

Determine recreational use suitability on five reservoirs.

Continue work on extension of Index of Biotic Integrity to reservoir habitat.

Cooperate with other agencies to ensure results are incorporated into plans for correcting threatened and impaired water uses.

Stewardship - Land and Forest Resource Management

	In Thousands of Dollars		
	1989 Actual	1990 Estimate	1991 Estimate
Appropriations......................	2,425	2,237	2,428
Power proceeds......................	-	112	-
Nonpower proceeds...................	775	421	-
Total obligations..............	3,200	2,770	2,428

Fiscal Year 1991 Proposed Funding:

Capital Investment

Single purpose recreation facilities:

Four existing reservoir recreation areas will be improved to meet existing needs, and two priority stream access sites will be acquired.

Operating Expenses

Recreation resources:

Oversee management and monitor use of 139 TVA reservoir recreation areas, 92 stream access sites, and 20 trails.

Prepare new operation/development policies and management plans to meet changing needs. Provide information to the public about TVA recreation facilities.

One TVA tracts will be made available to other agencies or the private sector to establish needed public recreation facilities on TVA reservoirs.

Plans will be prepared for improvement of three recreation areas.

Forest resources:

An automated database for TVA forested lands will be maintained, updated, and interfaced with TVA forest management software and the geographic information system (GIS), resulting in increased efficiency, improved stewardship, and cost savings. Continue the development of computer capabilities to analyze, schedule, and monitor progress of long-term forest management plans.

Best Management Practices will be implemented as a routine part of forestry operations on TVA lands.

Some 12,000 acres of TVA forest land will be inventoried and management prescriptions written, bringing the total to 120,000 acres.

Wildlife resources:

Ten dewatering projects will be operated to provide 18,000 acres of wintering habitat for 500,000 ducks and geese and to protect bottomland hardwood forests and improvements. To protect more than 1,000 acres of forest and agricultural lands, 23,000 feet of plugged drainage channel will be renovated at the Camden Unit.

One hundred and twenty-six agricultural licenses (3,585 acres) will be monitored for compliance with habitat improvement and stewardship provisions, and 68 additional licenses (1142 acres) will be evaluated.

Habitat protection/enhancement recommendations will be developed for 14,000 acres of TVA owned forest lands and 70 endangered species critical habitat areas will be monitored.

Stewardship - Land Between The Lakes

	In Thousands of Dollars 1989 Actual	 1990 Estimate	 1991 Estimate
Appropriations........................	3,257	3,675	7,098
Nonpower proceeds....................	434	410	425
Total obligations...............	3,691	4,085	7,523

Fiscal Year 1991 Proposed Funding:

Capital Investment

Land Between the Lakes (LBL) facilities:

Rehabilitation of existing facilities will begin. Work will include replacing two deteriorated toilet/shower buildings and electrically upgrading 100 camping sites at Hillman Ferry Campground; replacing the primary electrical system, kitchen equipment, and furniture at Brandon Spring Group Camp; and replacing kitchen equipment at the Youth Station.

Portable equipment and machinery will be purchased to replace retired and worn out items.

Operating Expenses

Maintenance of grounds and structures:

Adequate maintenance will be performed on 300 miles of roads and 110 miles of trails. Special maintenance needs will be addressed on 120 miles of roads that have been abandoned for 4 to 10 years.

Routine maintenance and upkeep of all facilities and grounds will be expanded on an annual basis in accordance with programmatic needs and maintenance management plans. Critical maintenance and repair projects will be completed and cyclic maintenance efforts expanded.

Testing and monitoring will be conducted on 37 major water and sewage systems in accordance with State and Federal regulations.

Pesticides and herbicides will be applied in accordance with LBL tick and vector control plans.

A 5-year catchup effort to eliminate the current $9.8 million backlog of identified maintenance needs will begin. Work will include the following:

Pull ditches, control erosion, grade, spot surface, and clean culverts on 145 miles of road abandoned for 4 to 10 years.

Repave 22 miles of roads; control erosion on the Trace; and repave and stripe the gatehouse, Brandon Spring, and maintenance complex roads.

Hillman Ferry Campground--Renovate wastewater treatment systems; refurbish water systems; repave interior roads; refurbish beaches; renovate gatehouse and campsites; replace recreation and playground equipment; repair water system; repair maintenance center heating/ventilating/air conditioning system; repair ice machine and intern trailer; and repair shoreline erosion, fishing pier, and play fields. Also, landscape and maintain trails and grounds.

Piney Campground--Renovate wastewater treatment systems.

Wranglers Campground--Maintain the grounds and repair roads.

Brandon Spring Group Camp--Renovate wastewater treatment system, repair exterior electrical system, upgrade electrical wiring in buildings, repave access road and parking lot, refurbish beach, paint all buildings, reroof all buildings, repair intern trailers, repair floors in commons building and dormitories, maintain grounds and trails, and landscape complex grounds.

Youth Station--Upgrade wastewater treatment system and electrical system; replace roofs on six buildings; repair play courts, trails, and paths; renovate bathrooms; paint all buildings; repair shoreline erosion; refurbish beaches, and maintain the grounds.

North Welcome Station--Replace exterior wood siding, repair roof, renovate water system, paint interior, upgrade wildlife check station, and perform grounds and landscape maintenance.

Patrol Headquarters--Recarpet, paint interior, and landscape.

Buffalo Pen--Repair or replace fencing.

Hematite Lake--Replace boardwalk, mow around the dam, repair spillways, and repair erosion on dam surface.

Silo Overlook--Replace wooden floor and handrails.

Land management:

About 5,500 acres of open land will be farmed, providing both income to local farmers and food production for wildlife. An additional 1,600 acres of open land will be maintained through controlled burning, cultivation, or mowing. Agricultural lands will be improved through a Johnson grass eradication program and over 500 acres of reverting open lands will be reclaimed to enhance wildlife habitat.

About 21,000 acres of forest land will be inventoried and management plans prepared. Efforts to improve the forest and timber base will be expanded through increased planting of seedlings.

Land Between The Lakes will revise its Natural Resource Management Plan, and as a part of that effort, prepare an Environmental Impact Statement (EIS) to remain in compliance with the National Environmental Policy Act.

Some 8 million board feet of timber and 6,000 cords of hardwood pole timber will be harvested by contract from about 3,000 acres of land. This operation will improve wildlife habitat and benefit the economy of the surrounding region by providing more than 100 full-time private sector jobs, with a payroll exceeding $1 million annually.

Stewardship - National Fertilizer Development Center

	In Thousands of Dollars		
	1989 Actual	1990 Estimate	1991 Estimate
Appropriations......................	-	1,972	6,595

Fiscal Year 1991 Proposed Funding:

Environmental cleanup and demolition:

Under requirements of the Resource Conservation and Recovery Act (RCRA), NFDC is currently assessing 50 solid waste management units (SWMU). Each SWMU requires sampling and analytical analysis to determine degree of environmental contamination. This investigative effort was started in FY 1990 and must be finished by FY 1992.

Restoration of the chemical plant area requires the demolition of several obsolete, potentially unsafe structures and the sampling, analysis, and disposal of significant quantities of chemicals from assorted drums, tanks and process vessels. Completion of this multi-year program will provide a safe, environmentally acceptable area for workers, will reclaim additional industrial sites, and will eliminate many eyesores in this area where we host thousands of technical visitors each year. Activities include:

Removing brick storage tanks adjacent to the nitric acid unit.

Removing asbestos from piping, roofing, and siding in phosphate plant area.

Demolishing a deteriorated shed area and overhead pipe rack adjacent to the catalyzer buildings.

Removing underground storage tanks.

Demolishing the proportioning building.

Removing and landfilling rubble from demolition.

Decontaminating the old ammonia plant building and disposing of oily sludge in the basement.

Continuing decommissioning and disposal of demonstration production facilities.

Providing sampling, analysis and disposal of chemicals in drums and storage tanks at various locations in the plant and of demolition sites.

Providing for disposal of abandoned equipment in storage sheds adjacent to the catalyzer buildings.

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Stewardship - General Services

	In Thousands of Dollars		
	1989 Actual	1990 Estimate	1991 Estimate
Appropriations......................	236	1,650	1,309

Fiscal Year 1991 Proposed Funding:

Capital Investment

General facilities:

Includes general-use buildings, construction equipment not assigned to specific projects, and tools and equipment used in carrying out activities for water quality management, public safety, information transfer, industrial hygiene testing, reproduction and blueprint work, mapping and surveying, and general resource development.

Operating Expenses

Emergency preparedness:

Provides for updating the agency's Emergency Preparedness plan. Relocation centers and fallout shelters will be inventoried, and their continued use will be evaluated.

WATER AND LAND

Program Financing Schedule

APPROPRIATIONS	In Thousands of Dollars 1989 Actual	 1990 Estimate	 1991 Estimate
Capital investment:			
Reservoir system facility	153	705	709
Water and air resource development	523	592	-
Total capital investment	676	1,297	709
Operating expenses:			
Reservoir system operations			
Water and air resource development	2,402	2,293	1,034
Land and forest resource development	4,271	5,139	1,594
Valley mapping	1,329	1,434	744
General services	1,028	972	899
	-	400	-
Total operating expenses	9,030	10,238	4,271
Total appropriations	9,706	11,535	4,980

WATER AND LAND

Program Financing Schedule (Continued)

	In Thousands of Dollars		
	1989 Actual	1990 Estimate	1991 Estimate
POWER PROCEEDS			
Capital investment:			
Water and air resource development	379	429	413
Total capital investment	379	429	413
Operating expenses:			
Water and air resource development	369	341	265
Total power proceeds	748	770	678
Total program financing	10,454	12,305	5,658

WATER AND LAND

Mission:

TVA's mandate " . . . to aid further the proper use, conservation, and development of the natural resources . . . " of the region requires that TVA conduct activities which go beyond the care of resources and facilities. To fulfill this responsibility, TVA is actively involved in projects which are designed to better understand and use the Valley's resources. These projects serve to expand knowledge of interrelationships among resources and their uses; to promote wise conservation, development, and use of the region's air, water, lands, forests, and wildlife; and to provide examples for implementation in other regions.

Goals:

- Provide the information needed to develop improved management practices with respect to water quality, reservoir operations, flood protection, and navigation; and to demonstrate these practices.
- Provide the information needed to manage pollution that has the potential to impact areas of TVA program interests (such as air, water resources, forestry, wildlife, and agriculture) and work toward solutions to those impacts.
- Develop the forest resources within the Valley region and take full advantage of the associated economic, recreational, and environmental benefits utilizing cooperative agreements with other government agencies and organizations.
- Promote opportunities for public use of the Valley region's land and water resources, and create within the public a better understanding of the economic and environmental importance of natural resources.
- Provide current and accurate maps, map-related data, and remote sensing products and services which are fundamental tools for natural resource and economic development in the region.

Water and Land - Reservoir System Operations

	In Thousands of Dollars		
	1989 Actual	1990 Estimate	1991 Estimate
Appropriations....................	2,555	2,998	1,743

Fiscal Year 1991 Proposed Funding:

Capital Investment

Columbia Dam and Reservoir:

Activities will include caretaking of some 13,000 acres of land and the uncompleted dam; protection of historical and archaeological sites; and continued monitoring of endangered mussels.

Tennessee River lock and channel improvements:

Navigation on the Tennessee River above Chattanooga has been impaired by the size of the locks at Chickamauga, Watts Bar, and Fort Loudoun Dams. These older locks are too small to accommodate the size of tows which typically operate on the river below Chattanooga. In addition, the navigation channel immediately below Pickwick lock has been subject to barge groundings. In 1990 TVA will commence a system-wide analysis of the Tennessee River navigation system. Upon completion of this study, if construction of the projects previously mentioned is warranted, TVA will develop multiyear, phased funding proposals for 50 percent of the costs to be appropriated by Congress from the Inland Waterways Trust Fund and the remainder from conventional appropriations.

Operating Expenses

Navigation development:

Provide specialized, navigation technical assistance and studies to public port authorities, State and local governments, terminal operators, commercial towing companies, and waterfront industries.

Perform system-wide navigation modeling studies to plan for the construction or expansion of navigation facilities such as locks, mooring areas, and barge terminals.

Continue cooperative marketing assistance programs with regional, State, and local organizations to promote maximum use of the Tennessee River navigation system.

Continue development of Navigation Resources Information System (NARIS). Complete development of River Traffic Forecast Model and Port Economic Impact Assessment Methodology. Initiate work on putting navigation data into TVA's Geographic Information System.

Water and Land - Water and Air Resource Development

	In Thousands of Dollars		
	1989 Actual	1990 Estimate	1991 Estimate
Appropriations	4,794	5,731	1,594
Power proceeds	748	770	678
Total obligations	5,542	6,501	2,272

Fiscal Year 1991 Proposed Funding:

Operating Expenses

Watershed water quality:

Complete analysis of pollution export loads from each subwatershed in the Valley.

Conduct aerial inventory of pollution sources in two watersheds, identify the cause of water quality impairments, and target priority areas for corrective action. Maintain watershed data base of pollution sources, impaired waters, and priority needs in the Valley.

Conduct one interagency demonstration to restore water quality impaired by nonpoint sources of pollution.

Provide technical assistance and data to promote pollution control efforts in four priority watersheds.

Continue activities to address long-term water supply problems from a regional perspective.

Reservoir releases improvements:

Continue improvements in minimum flows and in dissolved oxygen in the releases below Tims Ford and Norris. All components of the aeration system at the Douglas project would be removed and placed in storage.

Water and Land - Land and Forest Resource Development

	In Thousands of Dollars 1989 Actual	 1990 Estimate	 1991 Estimate
Appropriations.......................	1,329	1,434	744

Fiscal Year 1991 Proposed Funding:

Forest resources:

The Forest Resources Information System will be maintained and an 8-year cycle to update data in the system continued. A survey of all forest industries in the Tennessee Valley region, in cooperation with State agencies, will be completed, and the forest industry data base will be maintained.

TVA will continue to cooperate with other agencies to improve harvesting safety, site protection, and efficiency in the forests in the region.

Watershed Protection:

Reclaim 600 acres of denuded Copper Basin lands to prevent serious environmental and economic impacts, particularly on the reservoir system.

Work with outside groups to leverage funds to reclaim additional acreage in Copper Basin, and complete reclamation of abandoned manganese mines in the Holston River watershed.

Initiate landowner reviews toward establishing cooperative reclamation of abandoned brown iron ore mines in the Bear Creek watershed in northwest Alabama.

Water and Land - Valley Mapping

	In Thousands of Dollars		
	1989 Actual	1990 Estimate	1991 Estimate
Appropriations......................	1,028	972	899

Fiscal Year 1991 Proposed Funding:

Operating Expenses

Topographic mapping:

Revise 40 maps in the Valley topographic base map series.

Achieve full capability to import and export Digital Line Graph data from the U.S. Geological Survey National Mapping Program in the production and revision of digital Valley topographic maps. Sustain a leadership role in the production of high-quality graphic map products from digital cartographic data.

Support the National Aerial Photography Program.

LAND BETWEEN THE LAKES

Program Financing Schedule

	In Thousands of Dollars		
APPROPRIATIONS	1989 Actual	1990 Estimate	1991 Estimate
Capital investment:			
LBL development plan	-	-	1,000
Total capital investment	-	-	1,000
Operating expenses:			
Recreation and education resources	2,639	2,619	1,348
National demonstrations	775	779	-
Total operating expenses	3,414	3,398	1,348
Total appropriations	3,414	3,398	2,348
Nonpower proceeds	1,529	1,577	450
Total obligations	4,943	4,975	2,798

LAND BETWEEN THE LAKES

Mission:

The mission of Land Between The Lakes (LBL) is to provide outdoor recreation for the American public.

Located within 500 miles of over 100 million citizens, LBL will host 1 million annual visits.

Goals:

- Provide high-quality, cost-effective services to individuals and groups using LBL's outdoor recreation and environmental education facilities and programs.
- Increase visitation to LBL and the region by developing new opportunities for public use, expanding cooperative ventures, and targeting resources to highest priority areas.

Land Between The Lakes

	In Thousands of Dollars		
	1989 Actual	1990 Estimate	1991 Estimate
Appropriations........................	3,414	3,398	2,348
Nonpower proceeds....................	1,529	1,577	450
Total obligations...............	4,943	4,975	2,798

Fiscal Year 1991 Proposed Funding:

Capital Investment

New/revised activity - Development plan:

Changes to the management and infrastructure of LBL to more fully meet the needs of current and future users and to make overall operations more cost effective are being evaluated. New and expanded visitor attractions and services, involving private sector partnerships, will be planned and designed. Goals are to increase visitation levels and significantly enhance the region's economy. When fully operational, new developments would be expected to provide revenues to TVA equal to its expenses.

Potential activities include: (1) a Historical Village Complex, a major expansion of The Homeplace-1850; (2) a Golden Pond Gateway Complex, a major centralized development consisting of a buffalo attraction (400-500 animals) and a large group assembly complex; (3) an LBL conference center (for youth and adults) in the 5,000-acre environmental education area; (4) major improvements to LBL's family campgrounds and facilities; and (5) performance of any necessary evnironmental reviews.

Operating Expenses

Recreation resources:

Two of LBL's three family campgrounds--Hillman Ferry and Piney--will host over 165,000 overnight campers. Recreational opportunities will be provided for over 275,000 overnight visits at 28 special-use and lake access camping areas.

Basic monitoring of select wildlife populations will continue.

Some 300,000 visits will be recorded through participation in general recreation pursuits, hunting, wildlife viewing, and scenic driving.

Security and fire protection for all facilities and visitors will be slightly increased.

The Golden Pond Visitor Center will operate year-round, providing information and orientation to over 150,000 visitors.

LBL Association volunteers will supplement LBL staff in areas such as litter removal, wildlife monitoring, etc.

NATIONAL FERTILIZER DEVELOPMENT CENTER

Program Financing Schedule

	In Thousands of Dollars		
	1989 Actual	1990 Estimate	1991 Estimate
APPROPRIATIONS			
Capital investment:			
Fertilizer research and development facilities	3,392	4,832	-
Total capital investment	3,392	4,832	-
Operating expenses:			
Fertilizer research and development	25,885	25,451	20,100
Biomass research and development	2,739	2,748	-
Total operating expenses	28,624	28,199	20,100
Total appropriations	32,016	33,031	20,100

NATIONAL FERTILIZER DEVELOPMENT CENTER

Program Financing Schedule (Continued)

	In Thousands of Dollars		
	1989 Actual	1990 Estimate	1991 Estimate
NONPOWER PROCEEDS			
Capital investment:			
Fertilizer research and development facilities......................	1,076	729	2,691
Total capital investment..	1,076	729	2,691
Operating expenses:			
Fertilizer research and development..............................	21,319	19,141	6,584
Total operating expenses..	21,319	19,141	6,584
Total nonpower proceeds...	22,395	19,870	9,275
Total program financing...	54,411	52,901	39,275

NATIONAL FERTILIZER DEVELOPMENT CENTER

Mission:

The mission of the National Fertilizer Development Center (NFDC) is to develop and introduce fertilizer technology that will help the Nation's farmers increase production of food and fiber in an economical and environmentally safe manner. TVA expertise in chemical technology will also be used for other research and development activities in the national interest.

Goals:

- Shift emphasis of agricultural/chemical research, development, and demonstration from concentration on less expensive fertilizer toward development of fertilizers and fertilizer-use practices that are economically competitive and have less adverse impacts on the environment.
- Emphasize fast-tracking promising developments from prototype facilities at NFDC to speed adoption by the industry and U.S. agriculture.

NFDC - Fertilizer Research and Development

	In Thousands of Dollars		
	1989 Actual	1990 Estimate	1991 Estimate
Appropriations......................	32,016	33,031	20,100
Nonpower proceeds...................	22,395	19,870	9,275
Total obligations..............	54,411	52,901	29,375

Fiscal Year 1991 Proposed Funding:

Operating Expenses

Fertilizer research:

Nutrient efficiency research:

In 1991 research will be directed toward testing the most effective nitrogen loss inhibitors, on-farm evaluation of experimental fertilizers for reduced tillage systems, use of by-products and wastes in fertilizer production, and fate of indigenous and applied nutrients from nonpoint sources.

Research will be continued to identify and test inhibitors (chemical agents) that are compatible with nitrogen fertilizers and that effectively reduce nitrogen losses from soils, thus reducing the negative impacts of these fertilizers on the environment. Efforts will center around the development of a new class of compounds designed to capitalize on the benefits of a different ratio of ammonium to nitrate nitrogen.

Research will be initiated to investigate the potential of producing controlled release materials by various processes such as coating, formation of low-cost gels, use of materials with limited solubility, and development of materials whose release is dependent on their environment. Materials will be evaluated on their ability to increase the efficiency of nutrient release and reduce any adverse environmental impact.

In-house and cooperative research will be conducted in several states using nitrogen-15 labeled nitrogen fertilizer to determine the effectiveness of several off-season cover crops for minimizing over-winter nitrate leaching. Activities include:

Using nitrogen-15 labeled fertilizer to distinguish between residual fertilizer nitrogen and nitrogen mineralized from soil organic matter and crop residues as a basis for determining the origin of nitrogen leaching into groundwater.

Determining relationships between nitrogen rate, crop yield, and nitrate concentration in leachate as affected by cover crops.

Determining effects of cover crops on soil nitrogen-supplying capacity for subsequent crops.

Nitrogen-15 tracer techniques used to determine the fate of fertilizer nitrogen in soil-plant systems and the environment will be developed and refined.

A soil nitrate test to predict nitrogen supply from nonfertilizer sources and reduce adverse environmental impacts of agricultural nitrogen in humid regions of the United States will be developed and evaluated. Activities include:

Determining optimum time(s) and depth(s) of soil sampling in relation to soil type and climate.

Comparing nitrogen rate recommendations based on soil nitrate testing versus current recommendation systems.

Developing practical methods for preserving soil samples between sampling and analysis.

Determining optimum number and pattern of soil samples to achieve reliable predictions of soil nitrogen supply.

The usefulness of the soil nitrate test, "post-mortem" stalk nitrate test, and cover crop bioassay techniques as a possible year-round monitoring system for refining nitrogen rate recommendations and assessing potential adverse environmental impact will be determined.

Improved data analysis techniques and software for determining economically optimum nitrogen rates in relation to yield and potential for adverse environmental impact will be developed.

Optimum ammonium nitrate ratios for plant nutrition and associated application practices in relation to soil properties and stage of crop growth will be determined.

Agronomic, environmental, and economic effects of new nitrogen fertilizer sources/additives in cropping systems will be evaluated.

Laboratory, greenhouse, and cooperative field studies will be continued to learn how the rates of phosphate transformations contribute to the solubility of phosphate in soil solutions and regulate the amount of phosphorus available to plants and the amount of phosphorus which could potentially move through soil solutions into groundwater.

Research to evaluate sources of secondary and micronutrient fertilizers will be continued. Studies will be conducted to determine effects of using industrial by-products as fertilizers on plant uptake, soil reactions, and any potential hazards associated with their use. Such data can be valuable in determining which waste products can be recycled and reused as fertilizers for agricultural lands.

Fertilizer, soil, and crop research:

Through the efforts of the U.S. Department of Agriculture and others, new agricultural systems continue to emerge which vary widely from region to region. Conventional fertilizer materials and application techniques are not always compatible with these practices. Our research will be directed toward developing and evaluating fertilizers, fertilizer additives, and application techniques specifically designed for these widely divergent agricultural practices to ensure the most efficient, cost-effective, and environmentally acceptable use of these materials.

Cooperative research in reduced-tillage systems to determine optimum placement of phosphorus fertilizers, residual effects of phosphorus bands on corn yields, and needed changes in soil testing techniques following banded applications of phosphorus will be conducted.

Research of an applied/adaptive nature will be conducted cooperatively in 16 states to learn how to increase plant-nutrient efficiency under a wide variety of fertilizer, soil, and crop conditions. University contributions to the cooperative effort will approximately double the contributions by NFDC.

Biotechnology research:

The program to develop bacteriological/microbiological approaches to problems involving the production and use of fertilizers and associated pesticide materials will be continued. Efforts will focus on effective utilization of low-grade raw materials and fertilizer end-products to maintain the viability of the U.S. fertilizer industry and on reducing and remediating environmental impacts resulting from the use of fertilizers and associated pesticide materials.

Research will be continued on the use of microbes to improve recoveries of phosphorus from low-grade raw materials by beneficiation and to increase the availability of phosphorus to crops.

Fertilizer raw material research:

In 1991 research will be continued for beneficiating low-grade phosphate ores and dealing with associated impurities in product acid that could potentially have enormous beneficial impact on the U.S. phosphate industry. This research is needed to ensure the viability of the U.S. phosphate industry as presently mined high-grade ores are depleted.

Research will continue on the investigation and development of simplified systems for the reduction and/or removal of impurities from wet-process phosphoric acid to ensure the continued production of high-quality fertilizers from lower-grade raw materials. Emphasis will be on reduction of heavy metals which have adverse environmental impacts.

Research will continue on improved phosphate rock beneficiation with attention given to the development of simplified phosphate flotation processes that can be applied to dolomitic and calcitic ores, and recovery and recycling of flotation reagents to reduce environmental impact.

Research is being initiated on developing low-cost, low-energy production methods for fertilizer intermediates such as urea, ammonia, and ammonium nitrate, as well as for the synthesis of potential controlled release materials.

TVA's portable beneficiation pilot plant will be used to test process modifications to improve the efficiency of reagent usage in the Crago process, to investigate alternate reagents for dolomite separation in the basic Crago process equipment, and to demonstrate the TVA partial deoiling processes.

Basic fluid fertilizer research:

In 1991 research will continue on investigating the chemistry of existing processes and finding new, improved, and more concentrated clear liquid and suspension fertilizers that meet the current and future needs of U.S. agriculture. Emphasis will be on processes that are energy efficient and less polluting, and can be easily retrofitted into conventional industry plants.

Research will continue to investigate and evaluate new methods, innovative suspending agents, and organic gelling agents to improve the quality and storage properties of suspension fertilizers.

Research will continue to study and develop models of the effects of impurities on the physical and chemical properties of fluids, develop methods to produce quality fluids from lower-grade starting materials, and develop new, more environmentally acceptable fluid fertilizers.

Research will continue on developing gel-type fertilizers with micronutrients as more effective sources of fertilizer nutrients.

Research will be conducted on development of an ammoniated urea-nitric phosphate fluid-fertilizer process using nitric acid that will not generate by-product phosphogypsum.

Research will be conducted on acid-type solution fertilizers for direct use or drip irrigation, with the intention of using the acid mechanism to solubilize inexpensive sources of micronutrients which would not be soluble in neutral pH fluids.

Basic granular fertilizer research:

Research will be carried out to develop new, improved granular fertilizers that fit the rapidly changing needs of U.S. agriculture. Efforts will concentrate on granular materials that are more agronomically efficient and environmentally acceptable and processes that are energy efficient and less polluting.

Research will be initiated on the development of innovative methods for the production of controlled release fertilizer solids to increase utilization of applied fertilizer and reduce pollution due to fertilizer application.

Research will be continued to study the crystallography of new controlled-release granular fertilizers that are more environmentally acceptable to elucidate binding and nutrient-release mechanisms and suggest methods for product and process improvement.

Research on the curtain-granulation process developed for urea will continue for adaptation to ammonium phosphates to incorporate cost- and energy-saving advantages and reduced release of pollutants.

The urea-ammonium polyphosphate curtain granulation process will be operated at a higher production rate to obtain additional design data for potential scale-up.

Test quantities of urea will be produced, containing promising inhibitors for agronomic testing. This will be an extension of research to identify the most promising inhibitors to reduce nitrogen loss.

Ammonium sulfate-potash and ammonium sulfate-phosphate will be evaluated as possible new products.

Development will continue on the use of calcium, ammonium, or sodium lignosulfonates and agents other than lignosulfonates as substitutes for formaldehyde as conditioning agents for granular urea. Commercial adoption of these processes will continue to be pursued.

Basic research on new granular products will be continued, with emphasis on products which are compatible with reduced tillage and which are environmentally acceptable.

Separations science:

In 1991 generic research will be continued to develop physicochemical methods of separating or concentrating constituent materials from industrial waste or process streams. Efforts will target supercritical fluid extraction and membranes as technologies of interest in producing efficient, economical methods of reducing environmental impacts.

General analytical laboratory:

The General Analytical Laboratory will provide support to NFDC's research, development, and environmental activities by providing quality, cost-effective analytical services and developing and/or maintaining analytical methodology as required to meet changing program needs.

Economics and market research:

In-house and cooperative research will be conducted to evaluate market potential for new TVA fertilizer products and processes; other in-house and cooperative research will investigate how to increase efficiency in distribution of fertilizer products.

Fertilizer development:

Process development/introduction:

The major thrust in 1991 is to conduct research to develop process technology and to work with appropriate industry firms in testing TVA's experimental manufacturing processes. Major emphasis is on developing more efficient and environmentally safe manufacturing processes and assisting the fertilizer industry in solving environmental problems.

In cooperation with fertilizer industry firms, processes for seven experimental fertilizers will be tested to perfect the processes and make them readily available for industry acceptance.

New fertilizer granulation technologies, such as the falling-curtain process for urea and ammonium phosphates, will be tested. A determination will be made on how these technologies can be adopted by the industry to reduce investments for new plants and operating costs for existing plants.

Granulation technology will be tested for the granulation of gypsum, a waste product from the production of wet-process phosphoric acid and for granulation of by-product ammonium sulfate. Granulation of these two by-products increases their existing marketability in the fertilizer delivery system.

TVA will continue to develop and test ammonium polyphosphate (APP) suspensions with superior storage, handling, and application characteristics and will work with the suspension industry to promote adoption of new processes to reduce investments for new plants and operating costs for existing plants.

TVA phosphate beneficiation processes will be demonstrated using the portable pilot plant. Efforts will be made to identify phosphate industry clients for reimbursable test work with the pilot plant.

Economic and market analyses and management information vital to making correct business decisions will be developed and provided to the fertilizer industry, farm groups, universities, and public policymakers at Federal and State levels.

Costs of operating retail fertilizer businesses in major farming areas will be developed.

Enhanced fertilizer and pesticide-use efficiency will be promoted nationally through TVA's FORM-U-SHARE (FUS) software package which incorporates developments in operations research, engineering, agronomy, economics, and computer science technology; calculates least-cost formulations; and provides related data for better business decisionmaking.

Statistical and market information and interpretations will be developed for internal planning and provided through the trade press and in the publications, *Commercial Fertilizers* and *Fertilizer Trends*.

Experimental product testing/evaluation:

NFDC will close its relatively large demonstration-scale plants and will develop a series of new prototype plants that will produce about 2-3 tons/hour. This will provide greater diversity and flexibility in product development. NFDC will also address the growing importance of "non-traditional" agricultural crops and product needs, as well as use of industrial waste streams and animal wastes in fertilizer products. This strategy and potential spin-offs will require more concentrated efforts in market evaluation, economic feasibility assessment, and in-depth analysis of the potential contribution/adoption of new products (from crop, fertility systems, and market perspectives).

TVA will work with about 150 manufacturers, distributors, and dealers to demonstrate benefits of experimental products and to create, document, and demonstrate a market demand. Small tonnages of the following experimental products will be introduced and sold to industry at prevailing market prices:

Urea with lignosulfonate and other additives as a conditioning agent to replace formaldehyde.

Urea with nitrogen loss inhibitors.

Curtain-granulated, urea-ammonium polyphosphate.

Ammonium polyphosphate and ammonium polyphosphate-nitrate suspensions.

Granular gypsum, ammonium sulfate, and ammonium sulfate-phosphate made from by-product materials.

The major thrust in 1991 is to conduct research at NFDC and to use the established delivery system to work with appropriate industry firms and land-grant universities to test the agronomic, marketing, and engineering benefits of TVA experimental fertilizers. Results from such testing are quickly fed into product development research at NFDC to help scientists and engineers make needed product modifications. Where appropriate, TVA will use joint financing with industry firms to complete product modifications. More specifically:

New fertilizers that reduce groundwater pollution will be tested.

New developments will be evaluated in the context of real-world issues and problems. Investigative research field trials across the Nation will be used to (1) evaluate new fertilizers, (2) enhance the fertilizer orientation of institutions serving agriculture, and (3) provide information concerning industry and farmer acceptance to support decisions by industry to adopt newly developed experimental fertilizers and fertilizer technology.

These field trials will be of an adaptive/applied nature with a "closeness to the industry and farmer" and focused toward adoption of new products and improved fertilizer recommendations and efficiency of fertilizer use (technical, economic, and environmental). Related demonstrations designed to speed transfer of proven technology will be conducted.

At least 48 cooperative projects will be conducted in 25 states and Puerto Rico to accomplish these research, evaluation, and demonstration objectives. These projects will include approximately 300 specific activities/sites/farms.

The retail industry is a vital link in adopting and introducing new technologies and in supplying low-cost fertilizers and fertility management advice to farmers. To ensure that the dealer effectively serves as an outreach arm to the farmer, staff will continue to:

Intensify efforts to train dealers through meetings, conferences, and symposia.

Provide managerial tools to improve purchasing decisions, logistics, and manufacturing operations.

Help the farmer make better informed fertilizer purchase and use decisions.

National agricultural and environmental policy decisions will be interpreted for implications to NFDC's long-term planning and strategy. Assistance and education to help adjust to changes will be an important part of NFDC's information transfer. Efforts will be intensified to make NFDC research and development results more accessible and useful to policymakers dealing with agriculture and fertilizers.

POWER SUPPLY AND USE

TVA supplies electricity to 160 municipal and cooperative distributors serving more than 7 million residential, commercial, and industrial consumers in the seven Tennessee Valley States. In addition, TVA directly serves 48 large or unusual loads and 9 Federal installations.

Nuclear Plant Operations

TVA continues its nuclear recovery effort by addressing and resolving a number of issues in its nuclear power program. As part of this effort, TVA elected to voluntarily shut down its Browns Ferry Nuclear Plant in March 1985 and its Sequoyah Nuclear Plant in August 1985. Both Sequoyah Nuclear Plant units were back in service in FY 1989 and startup of the Browns Ferry Nuclear Plant Unit 2 reactor is scheduled for FY 1990.

Startup dates for the Browns Ferry Nuclear Plant unit 3 and unit 1 reactors are under review. Fuel load of the Watts Bar Nuclear Plant unit 1 reactor is now planned to occur during FY 1991. Schedules for the Bellefonte Nuclear Plant units are under review at this time.

Coal as Energy

TVA's existing coal-fired plants, with appropriate maintenance and improvement programs, will continue to be reliable sources of power supply for many years. TVA's coal-fired units, though aging, remain among the most efficient in the United States in terms of thermal efficiency. TVA maintains an aggressive program to modernize and extend the life of the existing coal-fired units.

TVA continues to implement management effectiveness programs designed to keep its coal-fired plants' operating costs at the lowest level possible. This will contribute to TVA's ongoing efforts to provide a reliable supply of power at the lowest feasible rates with an appropriate recognition of environmental considerations.

Future Options

Based on the midrange of the 1990 load forecasts and the projected nuclear unit schedule, TVA will have a need for peaking capacity during the 1990s but should have a relatively balanced base load power supply. With both units at Sequoyah returned to service, the current TVA power system consists of 32,110 megawatts (MW) of hydro, coal, nuclear, and combustion turbine generating capacity. The completion of Watts Bar unit 1 would add 1,170 MW of capacity.

As a result of the current power supply situation, which indicates midrange energy need dates of 1998 and 2000 for the last two planned-nuclear units, Bellefonte units 1 and 2 remain in deferred status. This deferral reduces near-term capital expenditures to a minimum level without jeopardizing the intermediate-term power supply. This will help TVA to achieve its goal of avoiding rate increases for fiscal years 1989-1991. No rate increase was necessary in fiscal year 1989 or fiscal year 1990.

Given the uncertainty associated with future load growth and other factors such as capital costs and schedule uncertanties, TVA reviews all power supply options on an ongoing basis. These options will be evaluated and implemented as needed to provide a balanced power supply. This approach helps to ensure a reliable power supply for TVA ratepayers at the lowest feasible cost and provides the flexibility to adapt to uncertain and changing future conditions.

Research and Development

Improvements and innovations made as a result of TVA's research and development program are another avenue for avoiding high-cost conventional generating stations. TVA, in cooperation with other parties, has built and is now testing a demonstration-scale, fluidized-bed combustion plant which shows promise of being less expensive and more environmentally acceptable than conventional coal-fired generating stations with scrubbers. TVA's research and development efforts now focus more on Electric Power Research Institute's research and development related projects.

Power Rates

TVA's rates were reduced to their present level in January 1988, following the resolution achieved through TVA's litigation with the Department of Energy. These rates reflect about a 2 percent increase over the rates applied by TVA during fiscal year 1987. Under these rates, a monthly bill for a retail residential customer using an average of 1,000 kilowatthours is $56.03, only $0.93 more than bills calculated under fiscal year 1987 rates. No increase in rates was needed in fiscal year 1989, and it has been determined by the TVA Board that none was needed for fiscal year 1990.

The TVA Board has stated its intention to hold rates for firm power sales at their present level through fiscal year 1991.

DISPOSITION AND SOURCES OF ENERGY

The TVA power supply sources consist of hydroelectric, coal-fired, combustion turbine, and nuclear generation, supplemented by interchange and purchase agreements with neighboring electric systems.

Disposition of Energy

TVA's power sales continue to experience an annual increase of about 3 to 5 percent. Sales were 111.6 billion kilowatthours for 1989 and are estimated to be 118.9 billion kilowatthours for fiscal year 1990, and 122.4 billion kilowatthours for fiscal year 1991. These increases are mainly due to increases in sales to municipalities and cooperatives plus continued growth in sales to directly-served customers.

In addition to sales, disposition of energy includes exchanges with adjacent systems, deliveries under an exchange agreement with Tapoco, Inc., TVA's internal requirements, and pumping for the Raccoon Mountain Pumped-Storage Plant.

Sources of Energy

TVA operates and maintains its own hydroelectric generating plants, and in addition acquires hydroelectric energy from Cumberland River facilities (marketed by the Southeastern Power Administration). Estimates for hydroelectric generation are based on normal weather conditions. Hydro generation is estimated to provide about 18.0 billion kilowatthours in fiscal year 1991 and about 19.8 billion kilowatthours in fiscal year 1990 including power generated from the Raccoon Mountain Pumped-Storage Plant. This plant is used to provide peaking capacity and to increase the reserve capacity of the TVA system.

The largest source of energy, steam-electric generation, is provided by coal-fired and nuclear plants. The 11 active coal-fired generating plants are estimated to provide 84.7 billion kilowatthours for 1991 and 85.7 billion kilowatthours estimated for 1990. In 1991, coal-fired generation is estimated to produce about 67 percent of the region's power requirements, about the same as projected for 1990. Nuclear generation is estimated to increase from 12.8 billion kilowatthours in 1989 to 17.0 billion kilowatthours in 1990 and 22.3 billion kilowatthours in 1991.

Energy receipts from other electric systems (excluding power wheeled for other systems) are estimated to be about 2.4 billion kilowatthours in 1991 down from the 1990 estimate of 3.3 billion kilowatthours and the 1989 receipts of 5.9 billion kilowatthours.

Disposition and Sources of Energy

	Million kWh 1989 Actual	 1990 Estimate	 1991 Estimate
Disposition			
Sales:			
Municipalities and cooperatives	92,538	97,525	100,045
Other electric systems	453	412	-
Directly served industries	16,260	17,688	18,900
Federal agencies	2,083	3,075	3,170
Interdivisional	258	244	250
Total sales	111,592	118,944	122,365
Delivered to other systems	1,672	719	-
Deliveries to Tapoco. Inc.--exchange	1,621	1,194	-
Transmission losses	2,817	3,270	3,365
Pumping requirements	2,409	1,750	1,800
Total disposition	120,111	125,877	127,530
Sources			
Generation:			
Hydroelectric	21,939	19,838	18,014
Coal-fired	79,493	85,672	84,691
Nuclear	12,773	17,030	22,346
Combustion-turbine	37	20	54
Total generation	114,242	122,560	125,105
Receipts from other electric systems	5,869	3,317	2,425
Total sources	120,111	125,877	127,530

Statement of Income*

The following is a statement of income for the power operations program. Net income for fiscal year 1991 is estimated to be $589.8 million, compared with an actual of $558.8 million in 1989 and $667.0 million estimated for 1990.

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*See page 70 for the reconciliation of the income statement with the budget summary.

	In Millions of Dollars		
	1989 Actual	1990 Estimate	1991 Estimate
Revenue	5,287.2	5,423.5	5,392.0
Operating expenses:			
Production expense before depreciation	2,044.6	2,122.9	2,156.6
Transmission expense	54.1	52.5	54.5
Power research, development, and demonstration	44.9	37.3	38.8
Customer accounts and services	27.4	32.3	33.9
Power administrative and other expenses	171.9	192.9	192.8
Payments in lieu of taxes	232.0	235.0	243.5
Provision for depreciation	342.5	378.0	394.0
Amortization of investment in canceled nuclear plants	273.3	273.3	271.6
Allowance for future recovery - Browns Ferry	-25.8	-28.2	-31.0
Nuclear plant compliance	37.8	62.7	84.2
Total operating expenses	3,202.7	3,358.7	3,438.9
Operating income	2,084.5	2,064.8	1,953.1
Other income and deductions:			
Interest and Other Income	-90.0	-33.0	-38.0
Other, net	29.6	39.0	42.5
Total other income and deductions	-60.4	6.0	4.5
Income before interest charges	2,144.9	2,058.8	1,948.6
Interest charges:			
Interest on debt	1,836.4	1,619.9	1,628.4
Amortization of debt acquisition expense	5.8	52.2	60.4
Less: Allowance for funds used during construction	-256.1	-280.3	-330.0
Net interest charges	1,586.1	1,391.8	1,358.8
Net income	558.8	667.0	589.8

Summary of Revenue from Power Operations

The TVA Act requires that TVA power rates be sufficient to produce gross revenues adequate to cover the cost of operation, maintenance, and administration of its power system; payments to States and counties in lieu of taxes; specified fixed charges associated with debt financing; U.S. Treasury payments; and a margin, determined by the TVA Board, for investment in power system assets, reduction of liabilities, and other purposes connected with TVA's power business.

Estimates of power revenues are summarized in the following table.

	In Millions of Dollars		
	1989 Actual	1990 Estimate	1991 Estimate
Municipalities and cooperatives	4,108.8	4,338.0	4,451.1
Federal agencies	557.8	422.3	273.4
Commercial and industrial	526.1	568.2	593.5
Electric systems	21.7	21.7	-
Total outside sales	5,214.4	5,350.2	5,318.0
Interdivisional	10.7	11.4	11.4
Total sales at 1988 rates	5,225.1	5,361.6	5,329.4
Rent from electric property and other revenues	62.1	61.9	62.6
Total power revenues	5,287.2	5,423.5	5,392.0

OPERATING EXPENSES

Operating expenses include power production; transmission; customer accounts and services; power research, development, and demonstration; payments in lieu of taxes; depreciation; and administrative expenses. For fiscal years 1990 and 1991, more than 65 percent of the power production expenses are for fuel—primarily coal.

The TVA Board is making every effort to hold down operating costs. Substantial reductions in personnel throughout TVA's total workforce have been made and were necessary to meet the objectives of operating a competitive power system with no rate increases anticipated through fiscal year 1991. Operating expenses for fiscal years 1989, 1990, and 1991 are all down from the $3,450.1 million level in fiscal year 1988. The costs for 1990 are estimated to be $3,358.7 million compared to the 1989 actual of $3,202.7 million. The projected cost increase from FY 1990 to 1991 is 2.4 percent. The total operating expense estimate reflects the TVA Board's objective of no rate increase—given the estimates of revenue and interest expense for fiscal years 1990 and 1991.

Summary of Production Expenses Before Depreciation

	In Millions of Dollars		
	1989 Actual	1990 Estimate	1991 Estimate
Hydroelectric:			
TVA hydro and pumped-storage	35.8	37.9	38.5
Cumberland	23.0	20.9	17.0
Total hydroelectric	58.8	58.8	55.5
Steam-electric and combustion turbine:			
Coal-fired fuel expenses	1,121.7	1,190.1	1,180.0
Nuclear fuel expenses	138.2	186.4	262.0
Combustion turbine fuel expenses	2.7	4.1	2.7
Total fuel expenses	1,262.6	1,380.6	1,444.7
Interchange and other, net	86.3	88.7	71.6
Labor, materials, and other production support expenses	636.9	594.8	584.8
Total production expenses before depreciation	2,044.6	2,122.9	2,156.6

Hydroelectric production expense for fiscal year 1990 is estimated to be $58.8 million. This includes an estimated payment of $20.9 million to the Southeastern Power Administration for Cumberland power and an estimate of $37.9 million for other hydroelectric operation and maintenance activities. This overall estimate is the same as the actual for fiscal year 1989.

Coal-fired generation continues to be the mainstay of the TVA power system in fiscal year 1990. Total fossil fuel costs are estimated to be $1,190.1 million at a cost of 1.389 cents per kilowatthour generated, compared with an estimate of 1.411 cents per kilowatthour generated in fiscal year 1989. The estimate for fiscal year 1991 is 1.393 cents per kilowatthour.

Nuclear generation for fiscal year 1990 reflects three generating units back in service. Nuclear fuel costs are estimated to be $186.4 million at a cost of 1.095 cents per kilowatthour generated. The estimate for fiscal year 1991 is 1.172 cents per kilowatthour.

Combustion-turbine generation is expected to be minimal during fiscal year 1990 and 1991. Combustion-turbine generation will be used only for peaking and for meeting load demand only when lower cost sources are not available.

Interchange and other receipts and deliveries from other systems are utilized from time to time, particularly when power can be purchased more cheaply than it could be generated on the TVA system. When TVA generating capacity is more than adequate for load requirements, power is delivered to other power systems as requested under exchange arrangements. Net interchange and purchased power for fiscal year 1990 is $88.7 million compared with $86.3 actual for fiscal year 1989. The estimate for fiscal year 1991 is $71.6 million.

Labor, materials and other production support expenses includes labor and materials and other support activities necessary for the operation and maintenance of production plants. It also includes load scheduling, communication operations, and an allocation of the cost of operating and maintaining multipurpose hydro facilities. The estimate for fiscal year 1990 is $594.8 million compared with $636.9 million for fiscal year 1989 and $584.8 million for fiscal year 1991.

Transmission expense includes the operation, maintenance, and testing of the transmission and communication systems under both normal and emergency conditions for the delivery of power to TVA's customers. Communication systems include various types of remote-controlled equipment activated from control centers to balance load and power requirements. Funds will also provide for the personnel and support needed for the operation and maintenance of the transmission lines, substations, and associated equipment in the TVA system. Funds required for fiscal year 1990 are estimated to be $52.5 million, down from the $54.1 million actual for fiscal year 1989. The estimate for fiscal year 1991 is $54.5 million.

Customer accounts and services primarily include customer-related activities and power consumer services such as customer meter readings, records and collections, uncollectible accounts, and other miscellaneous customer activities and demonstration expenses. Costs for fiscal year 1990 are estimated to be $32.3 million compared to the actual of $27.4 million for fiscal year 1989. The estimate for fiscal year 1991 is $33.9 million.

Power Research, Development, and Demonstration Expenses

	In Millions of Dollars		
	1989 Actual	1990 Estimate	1991 Estimate
Atmospheric fluidized-bed combustion	6.3	1.3	2.4
Technology transfer	2.0	1.9	1.9
Contributions to Electric Power Research Institute and other research organizations	28.2	23.7	23.8
Other research, development, and demonstration	8.4	10.4	10.7
Total RD&D expense	44.9	37.3	38.8

Power research, development and demonstration programs are designed to develop and evaluate new processes, technologies, and applications to address specific system needs and provide options for the retrofitting, modification, and future system expansion. The primary near-term objective is to increase the efficiency and decrease the cost of generating and distributing power while meeting environmental requirements. The long-term objective is to assist TVA in maintaining the flexibility to meet future generating requirements at the lowest feasible cost to the customer.

TVA is cooperating with Duke Power Company; Combustion Engineering; the Electric Power Research Institute; Fluor Constructors, Inc.; the Commonwealth of Kentucky; and the Atmospheric Fluidized-Bed Development Corporation in the design, construction, and testing of a demonstration-scale atmospheric fluidized-bed combustor (AFBC) at TVA's Shawnee Steam Plant at an estimated cost of $245 million. Congress appropriated funds to the Department of Energy for this project. AFBC technology, using lower grade coals, has the potential of being less expensive than new conventional coal-fired generating stations with scrubbers. The unit reached full load in April 1989 and parametric testing began in November 1989. Since initial startup the unit has produced approximately 355,000 MWH's.

TVA is continuing online diagnostic work at the Kingston steam plant to develop instrumention for monitoring tube leaks, slag deposition, heat rate, condenser performance, vibrations, turbine performance, and other parameters. Technology developments from the Kingston Project will be transferred to several other TVA fossil plants during FY 1990. Solid particle erosion and cavitation studies are under way at several fossil and hydro plants. The 10-MW spray dryer SO_2 removal pilot plant at Shawnee will evaluate performance on medium sulfur coal with low and high levels of chlorine. Existing NO_x emission monitors will be upgraded at eight fossil plants. Evaluation of NO_x emission and preliminary control options will be made for these plants. Engineering design and construction activities to install a 1.2-MW Selective Catalytic Reduction Pilot Plant at the Shawnee Test Facility in cooperation with the Electric Power Research Institute are underway with startup plans for January 1990.

In view of current system needs, focus is being shifted from conservation, load management, and renewable resource projects, (which are designed to reduce future electricity needs and the resulting requirements for capacity additions) to projects which promote efficient use of electricity and thereby encourage additional sales. EPRI's research and development will be the primary focus of TVA's research, development and demonstrations activities.

Power administrative and other expenses include the cost of administrative, supervision, marketing, and general support to management in planning, coordinating, and directing the overall TVA power program.

TVA makes "tax equivalents" payments to States and counties as required by the TVA Act. Such payments are based on 5 percent of gross proceeds derived from the sale of electricity, exclusive of deliveries to Federal agencies and for TVA's own use. Computations are based on gross proceeds for the preceding fiscal year. The following schedule shows by State the estimated fiscal years 1989-1991 tax equivalent payments.

State	Tax Equivalent Payments In Millions of Dollars FY 1989 Actual	 FY 1990 Estimate	 FY 1991 Estimate
Alabama	54.447	55.414	57.524
Georgia	3.002	2.945	3.391
Illinois	0.294	0.296	0.305
Kentucky	14.426	15.599	14.970
Mississippi	13.932	13.626	13.798
North Carolina	0.737	0.758	0.847
South Dakota	0.035	0.035	0.035
Tennessee	144.501	146.693	151.934
Virginia	0.606	0.634	0.696
Total	231.980	235.000	243.500

Reconciliation of Income Statement with Budget Summary

	In Millions of Dollars 1989 Actual	 1990 Estimate	 1991 Estimate
REVENUE FROM POWER OPERATIONS			
Per income statement (page 62)	5,287.2	5,423.5	5,392.0
Reconciling items:			
Interchange power delivered	33.8	18.2	13.3
Interdivisional sales and rents	-11.1	-11.8	-11.9
Interest and other income	90.1	33.0	38.0
Per budget summary (page 10)	5,400.0	5,462.9	5,431.4
EXPENSES			
Per income statement (page 62):			
Operating expenses	3,202.7	3,358.7	3,438.9
Other deductions	27.0	39.0	42.5
Interest and other income	-90.1	-33.0	-38.0
Net interest expense	1,586.1	1,391.8	1,358.8
Total	4,725.7	4,756.5	4,802.2
Reconciling items:			
Depreciation	-342.5	-378.0	-394.0
Interchange power delivered	33.8	18.2	13.3
Interest and other income	90.1	33.0	38.0
Interdivisional sales and rents	-11.1	-11.8	-11.9
Interest charges (defeasance adjustment)	-	64.8	8.1
Unallocated operating expense reduction	-	-	-70.9
Per budget summary (page 9)	4,496.0	4,482.7	4,384.8

STATEMENT OF RESOURCES PROVIDED AND APPLIED

The following table displays the changes in power program assets, liabilities, and equity items. This statement reflects the financial resources provided from various sources, such as borrowings and operations (after operating expenses are met) and the utilization of these resources for such items as capital investment, etc.

	In Millions of Dollars		
	1989 Actual	1990 Estimate	1991 Estimate
Resources provided			
Net income	558.8	667.0	589.8
Add items not requiring funds	381.4	520.0	492.4
Funds from power operations	940.2	1,187.0	1,082.2
Sale of power assets	1,013.5	62.5	53.8
Funds from power program	1,953.7	1,249.5	1,136.0
Change in capital lease assets	132.5	83.6	22.7
Net borrowings (net of discount)	-464.0	1,170.0	60.0
Less discount on bonds		-229.0	
Total source of funds	1,622.2	2,274.1	1,218.7
Resources applied			
Capital investment expenditures*	875.0	888.4	919.4
Change in capital lease assets	132.5	83.6	22.7
Payments to the U.S. Treasury	87.4	87.3	85.5
Nuclear plant compliance	118.2	139.0	168.0
Debt defeasance cost	182.0	867.0	-
Changes in other assets and liabilities	88.9	5.2	-10.7
Changes in inventory	-27.0	7.0	14.9
Changes in working capital other than inventory	165.2	196.6	18.9
Total disposition of funds	1,622.2	2,274.1	1,218.7

*See page 80 for reconciliation of capital investment expenditures with the budget summary. Capital investment expenditures includes loans and other long-term receivables.

Power Program Borrowings

Section 15d of the TVA Act authorizes TVA to issue bonds, notes, and other evidences of indebtedness to assist in financing its power program. The maximum amount of such obligations authorized to be outstanding at any one time is $30 billion. Excluding bonds payable to the Federal Financing Bank (FFB) under "in substance" defeasance arrangements, this indebtedness is $18.2 billion at the end of fiscal year 1989 and is estimated to increase to about $19.3 billion by the end of fiscal year 1990 and to $19.4 billion by the end of fiscal year 1991. Including the defeased bonds payable to FFB, TVA's total indebtedness is $19.0 billion, $24.3 billion, and $22.0 billion, respectively at the end of fiscal years 1989, 1990, and 1991.

Statement of Changes in Indebtedness

	In Millions of Dollars		
	1989 Actual	1990 Estimate	1991 Estimate
Borrowings outstanding at beginning of fiscal year			
Long-term debt:			
Payable to public	1,380	1,380	9,380
Payable to Federal Financing Bank	16,525	15,925	9,425
Short-term debt:			
Payable to U.S. Treasury	150	150	150
Payable to Federal Financing Bank	606	742	412
Total	18,661	18,197	19,367
(Defeased debt payable to Federal Financing Bank)*	0	800	4,900
Changes in borrowings during fiscal year			
Long-term debt:			
Payable to public—issues	-	8,000	-
—redemptions	-	-	-
Payable to Federal Financing Bank—issues	700	-	-
—redemptions	-500	-400	-
—defeasance	-800	-6,100	-
Short-term debt:			
Payable to Federal Financing Bank	136	-330	60
Total	-464	1,170	60
(Defeased debt payable to Federal Financing Bank)*			
—defeased by TVA	800	6,100	-
—repaid by Trustee	0	-2,000	-2,300

*Defeased debt payable to Federal Financing Bank is excluded from totals.

Statement of Changes in Indebtedness (Continued)

	In Millions of Dollars 1989 Actual	 1990 Estimate	 1991 Estimate
Borrowing outstanding at end of fiscal year			
Long-term debt:			
Payable to public	1,380	9,380	9,380
Payable to Federal Financing Bank..	15,925	9,425	9,425
Short-term debt:			
Payable to U.S. Treasury..	150	150	150
Payable to Federal Financing Bank..	742	412	472
Total..	18,197	19,367	19,427
(Defeased debt payable to Federal Financing Bank)*....................	800	4,900	2,600

*Defeased debt payable to Federal Financing Bank is excluded from totals.

Capital Investment

Power capital investment for fiscal year 1991 is expected to be $1,249.4 million compared with $1,168.7 million estimated for fiscal year 1990 and $1,092.0 million actual for fiscal year 1989. The following table shows the estimated system capacity and net generation by type for fiscal years 1990 and 1991.

	Nameplate Capacity - kW		Net Generation - Million kWh	
	September 30, 1990	September 30, 1991	1990 Estimate	1991 Estimate
Hydro................................	6,055,910	5,729,410	19,838	18,014
Coal.................................	17,647,360	17,647,360	85,672	84,691
Nuclear..............................	5,897,160	5,897,160	17,030	22,346
Combustion turbine...................	2,510,000	2,510,000	20	54
Total...........................	32,110,430	31,783,930	122,560	125,105

Capital Investment

	In Millions of Dollars		
	1989 Actual	1990 Estimate	1991 Estimate
Generating capacity additions:			
Watts Bar Nuclear Plant	534.7	468.2	526.3
Bellefonte Nuclear Plant	1.4	4.0	3.0
Subtotal	536.1	472.2	529.3
Additions and improvements at power facilities	524.7	566.1	575.8
Transmission system facilities	62.4	98.8	105.0
Acquisition of fuel reserves	-0.9	1.0	0.8
Loans and other long-term receivables	-27.0	-8.1	-6.3
General facilities	-1.2	10.4	10.8
Purchase lease assets	-39.0	-	-
Nuclear fuel	36.9	28.3	34.0
Subtotal	1,092.0	1,168.7	1,249.4
Less allowance for funds used during construction	-256.1	-280.3	-330.0
Other capital investment changes	39.1	-	-
Total capital investment	875.0	888.4	919.4

Watts Bar Nuclear Plant

In Millions of Dollars			
Prior Years	1989 Actual	1990 Estimate	1991 Estimate
5,194.4	512.6	468.2	526.3

Project Description: The Watts Bar plant consists of two nuclear-fueled generating units with a total rating of 2,539,800 kW. The site is located on Chickamauga Reservoir just downstream from Watts Bar Dam, approximately eight miles southeast of Spring City, Tennessee.

Project Status and Plans for 1990: Preliminary construction at the site began in December 1972. The construction permit was issued January 23, 1973. The projected fuel load date for unit 1 is December 1990. The projected fuel load date for unit 2 is under review.

Cost Estimate: The total cost estimate for this project is unavailable at this time due to the review of the fuel load date for unit 2.

Bellefonte Nuclear Plant

In Millions of Dollars			
Prior Years	1989 Actual	1990 Estimate	1991 Estimate
4,273.5	-0.9	4.0	3.0

Project Description: The Bellefonte plant consists of two nuclear-fueled generating units with a total rating of 2,664,000 kW. The site is on Guntersville Reservoir about seven miles northeast of Scottsboro, Alabama.

Project Status and Plans for 1990: At this time, Bellefonte Nuclear Plant is in deferred status with a construction schedule to resume in mid-1990s with completion in late 1990s. The commercial operation dates are under review. The cost estimates for fiscal years 1990 and 1991 are for essential contract services rendered for maintaining construction licenses.

Cost Estimate: The total cost estimate for this project is unavailable at this time due to the review of the commercial operating dates.

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Other Capital Expenditures

Additions and improvements at generating plants: Included are funds to provide for modifications necessary to improve the overall power system's operation, as well as improve internal operation and maintenance. Funding also provides for replacement of deteriorated generator stator windings at various hydroelectric generation plants; replacement of worn or inefficient coal-handling equipment; improvements to ash disposal facilities and environmental control facilities; replacement of inferior spindle and turbine parts and various boiler components and tubes; and safety, environmental, compliance, and reliability modifications at various coal-fired and nuclear plants.

Transmission system facilities: Various improvements are also needed for the extensive network of transmission facilities, including extra-high-voltage as well as lower voltage facilities, which TVA uses to supply electric energy to distributors and other customers. Through a seven-State communication network, the Power System Control Center near Chattanooga, Tennessee, constantly adjusts generation at the interconnected units to meet varying load demands on the most economical basis. In addition, the transmission facilities are used in balancing the system load by exporting or importing power to meet temporary energy surpluses or shortages and to accommodate power flow among interconnected power systems.

Acquisition of fuel reserves: TVA has secured fuel reserves to help ensure a reliable and economic fuel supply for its coal-fired and nuclear plants over their expected economic lives. Funds are spent for assessing system needs, and maintenance of TVA fuel reserves.

Reconciliation of Capital Expenditures with Budget Summary

	In Millions of Dollars		
	1989 Actual	1990 Estimate	1991 Estimate
Capital investment expenditures per statement of resources provided and applied (page 76)..	875.0	888.4	919.4
Reconciling items:			
Sale of nuclear fuel...	-39.0	-41.5	-41.3
Change in undelivered orders..	-14.7	-	-
Allowance for funds used during construction........................	256.1	280.3	330.0
Total capital investment per budget summary (page 8)............	1,077.4	1,127.2	1,208.1

Changes in Other Assets and Liabilities

TVA maintains inventories of fuels, spare parts, and other supplies for use on an as-needed basis. TVA also defers some charges to the future periods when the products or services purchased are actually used by the power system. These deferred charges are made in accordance with generally accepted accounting principles.

The amounts shown, exclusive of investment funds and interest on funds, will all ultimately be distributed to power system operating expense.

Change in Power inventories

	In Millions of Dollars		
	1989 Actual	1990 Estimate	1991 Estimate
Coal	-26.2	8.0	11.0
Supplies and materials	-0.8	-1.0	3.9
Total power inventories	-27.0	-7.0	14.9

Changes in Other Assets and Other Liabilities

	1989 Actual	1990 Estimate	1991 Estimate
Cancellation costs for nuclear generating units	3.0	1.3	0.5
Bond issue and reacquisition expense	-	25.0	-
Other	85.9	-21.1	-11.2
Total changes in other assets and other liabilities	88.9	5.2	-10.7

System coal inventory at the beginning of the fiscal year 1989 was 6.4 million tons which decreased during fiscal year 1989 to 6.0 million tons at fiscal year end. The inventory level for fiscal year 1990 is estimated to be approximately unchanged from the previous year at 6.0 millions tons. Estimates for fiscal year 1991 reflect an increase of approximately 1.7 million tons to 7.7 million total tons. Reflecting the changes in tonnage and price, the inventory level is estimated to increase $8.0 million in fiscal year 1990 and increase $11.0 million in fiscal year 1991.

General storeroom supplies and materials for operation, maintenance, and construction activities are expected to decrease $1.0 million in fiscal year 1990, most of which is for supplies and materials for fossil and hydro plants, shops and services, and transmission facilities. In fiscal year 1991, the $3.9 million increase is to support nuclear, fossil, and hydro storerooms; and for shops and services; transmission, and other facilities. These supplies and materials include parts for nuclear modification, substations, steel poles, boiler tubing and spare parts for scrubbers, precipitators, pulverizers, and turbines used in the operation and maintenance of the power system.

Deferred nuclear plant compliance costs for fiscal years 1990 and 1991 are estimated to be $139,000 and $168,000, respectively. In accordance with guidance issued by the Federal Energy Regulatory Commission (FERC), capitalized costs associated with the nuclear recovery program are separated into two categories—(1) additions and improvements, which will result in costs associated with retirement units and which are classified as construction work in progress, and (2) nonrecurring costs of studies and analysis mandated by regulatory bodies related to plants in service. Associated nonrecurring costs are deferred up to the time a particular nuclear generating unit is returned to service. The deferred charges are then amortized over a ten-year period.

THURSDAY, MARCH 1, 1990.

DEPARTMENT OF THE INTERIOR

BUREAU OF RECLAMATION

WITNESSES

HON. MANUEL LUJAN, JR., SECRETARY OF THE INTERIOR
JOHN M. SAYRE, ASSISTANT SECRETARY, WATER AND SCIENCE
DENNIS B. UNDERWOOD, COMMISSIONER, BUREAU OF RECLAMATION
ANTHONY L. ITTEILAG, DIRECTOR OF BUDGET, DEPARTMENT OF THE INTERIOR

Mr. BEVILL. The committee will come to order.

OPENING REMARKS

Mr. Secretary, we are pleased to have you with us on your annual visit here this morning.

Secretary LUJAN. Thank you, Mr. Chairman.

Mr. BEVILL. You may proceed as you wish. If you wish to summarize, we will put your prepared statement in the record. Also, I mentioned to the Commissioner yesterday, that because we have a busy schedule to deal with this morning, we are going to let him just submit his statement for the record.

SECRETARY LUJAN'S OPENING REMARKS

Secretary LUJAN. Yes, sir. Thank you very much, Mr. Chairman. I have already submitted a statement for the record, and I will summarize as you suggest.

Mr. Chairman, it is a great pleasure to appear before this committee again. With me today are John Sayre, the Assistant Secretary for Water and Science; Dennis Underwood, the Commissioner of the Bureau of Reclamation; and Tony Itteilag, the Department's Budget Officer.

STEWARDSHIP

Mr. Chairman, since my last appearance before you, we have been hard at work to advance the President's mandate of stewardship over the resources entrusted to the Department. The President's 1991 budget reflects a strong commitment to the environment, and is the blueprint of the key initiatives of the Department.

AMERICA THE BEAUTIFUL

One major initiative is "America the Beautiful", the President's proposal for promoting the conservation of and enhancing recreational opportunities in the public lands. $366 million is requested for the initiative of America the Beautiful. That is an increase of

$69 million over the amounts provided for in comparable programs in fiscal year 1990.

LEGACY "99"

The second major initiative, Mr. Chairman, one that complements America the Beautiful, is "Legacy '99" which looks forward to the Department of the Interior's 150th anniversary in 1999. The Department has requested for the program, an increase of $114 million over 1990.

Legacy '99 programs aim to enhance the infrastructure of land management agencies over the next eight years through increased emphasis on maintenance of facilities and on correction of hazardous materials and dam safety problems. As outlined in my written statement, Reclamation has a significant role to play.

DAM SAFETY PROGRAM

In particular, Mr. Chairman, in order to capitalize on Reclamation's engineering and construction management expertise, we are proposing that Reclamation assume responsibilities for managing the BIA Dam Safety Program.

WETLANDS INITIATIVE

Another important initiative involves wetlands. The President has made it clear that there should be no overall loss of wetlands. We are requesting $154 million, an increase of $32 million over 1990 for seven bureaus, including Reclamation.

OTHER INITIATIVES

Reclamation is involved with other Interior Bureaus in initiatives to improve the use of volunteers, non-Indian education programs, opportunities for women and minorities, and the war on illegal drugs.

FY 1991 BUDGET REQUEST

In total, the Department's budget includes $7.7 billion in budget authority. For the Bureau of Reclamation programs under the jurisdiction of this subcommittee, we are requesting $911 million.

The 1991 budget continues Reclamation's new direction. I strongly support the Bureau's efforts in this regard. We need to ensure that the Bureau's long-standing expertise in engineering and construction management is well maintained.

OPERATION AND MAINTENANCE

In addition, consistent with my Legacy '99 initiative, we believe that an adequately funded operation and maintenance program is essential, and we ask that you support our request for $231.5 million.

CONSTRUCTION PROGRAM

The 1991 request for the construction program is $609 million. The request provides for 24 major projects as well as other projects requiring rehabilitation, minor construction or safety of dams work.

In general, the request continues the policy of completing projects substantially underway on the most efficient schedule possible consistent with available funds. As you know, however, no funds are requested for the Garrison Diversion Unit due to concerns about the project's cost.

These are the highlights of our budget proposal. I thank you for the opportunity to appear before you today. I look forward to continuing working with you as you consider Reclamation's 1991 budget and on other important issues that face us.

Mr. Chairman, that concludes my statement, and as you agreed, the Commissioner will submit his statement for the record. Thank you very much, Mr. Chairman.

[The prepared statements of Secretary Lujan and Commissioner Underwood follow:]

STATEMENT OF MANUEL LUJAN, JR.
SECRETARY OF THE INTERIOR
BEFORE THE HOUSE APPROPRIATIONS SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

FISCAL YEAR 1991 BUDGET

MARCH 1, 1990

Mr. Chairman and Members of the Committee:

I am pleased to appear before you today in support of the President's Fiscal Year 1991 budget for the Bureau of Reclamation.

Since my appearance before you last year, I have been hard at work with the employees and constituents of the Department to advance the President's mandate of Stewardship over the resources entrusted to the Department.

As we look to the next decade, we see that we have much to do to enhance the caliber of our public lands and resources so that they are in even better condition than when we assumed stewardship of them. The President's 1991 budget is a blueprint of the key initiatives of the Department. As such, it reflects a strong commitment to the environment.

I would like to briefly review some of the highlights of the overall 1991 budget for the Department of the Interior, because I believe it contains a number of initiatives that may be of interest to you. As I go along, I'll touch on how the Bureau of Reclamation is involved in these initiatives.

HIGHLIGHTS OF THE DEPARTMENT'S FY 1991 BUDGET

FY 1991 Budget Totals The Department's 1991 budget of $7.7 billion provides for increased efforts to maintain and expand our stewardship of the Nation's public lands and resources. A total of $5.9 billion is included for funds subject to annual appropriations, including $911 million for Bureau of Reclamation programs under the jurisdiction of this Subcommittee.

America the Beautiful To carry out President Bush's pledge to undertake a program to strengthen and preserve the Nation's natural resources, and responding to Congress' continued interest and concern in this area, the Department's 1991 budget includes a major initiative called "America the Beautiful." The purposes of this initiative are to promote tree planting, to enhance recreational opportunities and to benefit nationally significant natural and cultural resources. America the Beautiful includes expanded land acquisition for the national parks, wildlife refuges, forests, and other public lands. The Interior bureaus participating in the initiative are those that manage large amounts of public land - the Bureau of Land Management, the Fish and Wildlife Service and the National Park Service.

Maintaining Infrastructure - Legacy '99 In order to improve our stewardship over resources and facilities managed by Interior, we are proposing a second major initiative, one that complements America the Beautiful, called "Legacy '99." This is a multi-year repair and rehabilitation program with the goal of substantially improving the condition of our resources and facilities by 1999, the 150th anniversary of the Department. The Legacy '99 program emphasizes: increasing **maintenance** levels, ensuring the **safety of dams**, and cleaning up **hazardous materials**. Reclamation has a significant role to play in each of these elements of Legacy '99.

Legacy '99 incorporates Reclamation's multi-year effort to reduce a backlog of deferred **maintenance** work. This program was initiated in 1989 in order to improve the operational efficiency of existing facilities and to emphasize funding for Reclamation's preventive maintenance efforts. Reclamation's 1991 budget includes $32.2 million for backlog reduction work, an increase of $2.2 million over 1990.

Reclamation's 1991 request for **safety of dams** work is $90.6 million, an increase of $39.5 million over 1990. This includes $9.1 million for a new initiative related to safety modifications on Bureau of Indian Affairs (BIA) dams. BIA has 52 high and significant hazard dams, 23 of which are currently among the top 50 dams on the Department's dam safety priority list. In order to facilitate timely corrective actions on these dams and capitalize on Reclamation's engineering and construction management expertise, the Department proposes that, beginning in 1991, funding for safety modifications on BIA dams be included in Reclamation's budget.

Reclamation's 1991 request for the management of **hazardous materials** is $14.4 million, an increase of $3.5 million. The request includes $2.5 million for the Bureau's role in the Department's Irrigation Drainage Program, under which irrigation-induced water quality problems are identified and addressed.

In addition to its role in the Legacy '99 initiative, Reclamation is involved with other Interior bureaus in the following initiatives for which resources are being requested.

Wetlands Initiative The President has made it clear that a goal of his Administration is no overall net loss of wetlands in the United States. Reclamation's request includes $2.0 million for a wetlands development initiative that will initially focus on completing an inventory of wetlands on the 8.5 million acres of land that it administers.

Global Change Research During the first year of President Bush's Administration, the United States has taken a leadership position in addressing the question of global climate change. Reclamation's budget includes $2.4 million to initiate studies of the potential effects of global climate change on selected river basins in the West.

Water Policy Council Improved management of the Nation's water resources is a top priority of this Administration. Interior has specific responsibilities with respect to water issues involving public lands, Bureau of Reclamation projects, and Indian Tribes, as well as a principal role in water quality research. Last June I established the Interior Water Policy Council, chaired by the Under Secretary, to advise me on developing and implementing a strategy to improve the Nation's water resource management. Working groups have been formed to deal with specific issues in areas such as Indian water rights settlements, wetlands policy, dam safety, water quality and quantity.

Stewardship Initiatives Within the Stewardship concept, there are several initiatives in the 1991 budget which focus on improved use of human resources. These initiatives include encouraging greater use of volunteers; expanded support for education, including educating the public about the Nation's natural resources; encouraging grass roots interest in and enjoyment of our natural resources through the Take Pride in America campaign; increasing employment opportunities for women and minorities; and strengthening the Department's drug enforcement, education and treatment programs. Reclamation's 1991 budget includes an increase of $1.0 million for these initiatives.

FY 1991 BUREAU OF RECLAMATION BUDGET

The total 1991 budget for Reclamation is $1,039.0 million, a decrease of $39.3 million from the 1990 estimate of $1,078.3 million. The President's request for Reclamation's seven current appropriations is $915.4 million, a decrease of $48.5 million compared to the 1990 level of $963.9 million. When funds transferred from the Colorado River Dam Fund to the Western Area Power Administration are considered, the net current funding requested for Reclamation accounts is $910.7 million.

The 1991 budget continues the Bureau of Reclamation's new direction, which involves shifting its focus from water project construction to innovative and efficient water resources management.

As part of its new direction, and consistent with my Legacy '99 initiative, Reclamation is continuing to place a high priority on providing increased funding for its **Operation and Maintenance** (O&M)

program. With existing Bureau facilities growing older and new facilities coming on line, we in Interior believe strongly that a well-planned and adequately funded O&M program that emphasizes ways to make projects function more productively and in a more environmentally sound manner is essential.

The 1991 request of $231.5 million for the O&M program, an increase of $22.2 million over 1990, will allow Reclamation to continue reducing the backlog of deferred maintenance work, as mentioned above under Legacy '99, and to better protect the Nation's investment in its water and power delivery systems. This program includes funding for operations, maintenance and replacement activities involving 35 Reclamation projects. It also includes funds for associated programs that seek to maximize benefits from existing projects through such means as increasing water conservation and improving water quality, improving the management of Bureau lands, restoring and enhancing recreation and fish and wildlife benefits, evaluating potential dam safety problems, and improving system efficiencies.

The request for **General Investigations** is $11.5 million, an increase of $0.1 million over 1990. General Investigation funds are used to study water related problems in the West and to identify and evaluate a broad range of alternative solutions. The 1991 request funds 25 ongoing planning studies and 9 new studies. In line with Reclamation's new direction, these studies emphasize conservation, the protection of fish and wildlife, and non-structural or less capital-intensive solutions to water resources problems. Non-federal entities are assisting in these studies by sharing costs as appropriate.

The 1991 request for the **Construction Program** is $609.4 million, $43.4 million below 1990. The Construction budget generally continues the policy initiated in 1988 to complete projects substantially underway in order to begin repayment to the Federal Government and to make project benefits available on the most efficient schedule possible within available funds. Funds requested in 1991 for major projects include $198.5 million for the Central Arizona Project (including $14.2 million in the Safety of Dams program) and $98.8 million for the Central Utah Project. It should be noted that no funding is requested in 1991 for the Garrison Diversion Unit, due to concerns about the project's costs and economics.

The request for the **Loan Program** in 1991 is $5.7 million. The funding requested for 1991 will meet scheduled commitments on two ongoing loans, one of which is being used to rehabilitate Middle Creek Dam in Montana, and the other to rehabilitate or replace certain facilities in the Hidalgo County, Texas, Irrigation District.

The 1991 request for **General Administrative Expenses** is $51.4 million, an increase of $4.1 million over 1990. The request for Reclamation's **Working Capital Fund** is $4.8 million, a decrease of $3.6 million from 1990. This includes $1.9 million to complete the acquisition of computer capacity to support the Department's initiatives to modernize payroll/personnel and financial accounting systems. The 1991 request for the **Emergency Fund** is $1.0 million, the same level as 1990.

Mr. Chairman, thank you for the opportunity to appear before you today. I look forward to continuing working with you and other members of the Subcommittee as you proceed with your consideration of Reclamation's 1991 budget, and on other important issues that confront us. I would be pleased to answer any questions you have at this time.

OPENING REMARKS OF DENNIS B. UNDERWOOD COMMISSIONER, BUREAU OF RECLAMATION DEPARTMENT OF THE INTERIOR BEFORE THE COMMITTEE ON APPROPRIATIONS SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT MARCH 1, 1990

Thank you, Mr. Chairman, for the opportunity to appear before the Subcommittee today to outline the proposed fiscal year 1991 budget for the Bureau of Reclamation.

Reclamation's fiscal year 1991 request for $910.7 million in current authority affirms the Administration's commitment to wise and effective use of our natural resources. Consistent with the Bureau's changing emphasis from water project construction to water resources management, this budget request provides for innovative programs to encourage conservation, environmental protection and enhancement, and nonstructural solutions to water resources problems and needs. At the same time, our request reflects our continuing commitment to balance new priorities with our historic and important role in supporting economic development and opportunity in the 17 Western States. In part, because of the overall need to control Federal outlays, our request represents a $49.6 million reduction from fiscal year 1990.

Likewise, Mr. Chairman, our request continues the policy of placing priority on completing projects and features substantially underway, thus allowing project benefits and repayment to begin sooner. Among the principal elements of our proposed fiscal year 1991 program are continuing construction on the multi-purpose projects, safety of dams activities, technical and environmental research, operation and maintenance of existing facilities, and water resource management investigations.

In concert with Secretary Lujan's "Legacy '99" initiative, Reclamation's fiscal year 1991 request includes increases in funding for operation and maintenance and safety of dams efforts. Similarly, this request strongly supports the priorities set forth by Secretary Lujan's STEWARDSHIP initiative, as well as the President's objective of environmentally sensitive water resource development and management.

In General Investigations, Operation and Maintenance, and Construction, increased funding is requested for wetlands protection and development, water quality improvement, fish and wildlife mitigation and enhancement, and improvement in recreational opportunities. Also included in our proposed fiscal year 1991 program is increased funding for the management and clean-up of hazardous materials.

General Investigations -- $11,456,000

Mr. Chairman, the focus of our request for General Investigations of $11.5 million is to develop innovative methods for dealing with difficult water resource problems. This program will fund 25 ongoing studies to sustain and enhance water supplies, improve fish and wildlife habitat, and protect groundwater supplies.

In addition, this budget request provides for nine new studies which will emphasize water conservation, conjunctive use of ground and surface waters, coordinated operation of projects, and other nonstructural solutions to water resource problems. Among these new studies is one directed specifically at drought management and the development of drought contingency plans.

I would also stress that cost sharing through partnerships with non-Federal entities is an integral part of this program, with eight of the new studies being at least 50 percent cost shared.

Operation and Maintenance -- $231,516,000

For operation and maintenance of Reclamation facilities, we are requesting $231.5 million -- an increase of $22.2 million over the fiscal year 1990 level. It is important that we continue the reduction of Reclamation's backlog of operation, maintenance, and replacement work. Under the "Legacy '99" initiative, we are placing additional priority on accomplishing that task. The request includes $32.2 million for backlog reduction work.

With existing facilities growing older and new ones coming on line, a well planned, responsibly funded operation and maintenance program is essential to protecting the nation's water and power delivery systems. Failure to properly maintain facilities results in lost benefits, lost revenues, and repairs that are often far more costly than preventative actions.

Through a more comprehensive operation and maintenance program we are able to provide greater benefits from our project facilities through increased water conservation, improved water quality, and the enhancement of fish and wildlife habitat and recreational opportunities.

Shoreline erosion control and debris removal along Franklin D. Roosevelt Lake was initiated in fiscal year 1990 on a 10-mile reach between Inchilium ferry landing and Barnaby Island. A total of $1 million is included in fiscal year 1991 request for similar shoreline erosion control and cleanup activities. Our schedule is to continue such activities until completion in 1994.

Payments to the Treasury

Payments to the Treasury for fiscal year 1991 are estimated at $86 million. Through fiscal year 1989 TVA has paid a total of $2.7 billion to the Treasury.

	(In Millions) 1991 Budget Appendix
Payments under the 1959 amendment, Section 15d of the TVA Act:	
Return (dividend) on appropriation investment, 1961 through 1991	$2,034
Payment of appropriation investment in power facilities, 1961 through 1991	550
Total under provisions of Section 15d of the TVA Act	2,584
Other payments to general fund:	
Repayment of appropriation investment in power facilities, 1946 through 1958 ($185.0 million), and redemption of bonds sold by TVA to the Treasury prior to 1942 ($65.1 million)	250
Total from power proceeds	2,834
Payments from nonpower proceeds, 1946 through 1991	43
Total payments through 1991	$2,877

Construction Program -- $609,430,000

In our proposed $609.4 million construction program, work will continue on 24 major multipurpose projects, as well as project rehabilitation and betterment, minor construction, safety of dams, and technical and environmental research on a number of Reclamation projects.

Our construction request includes $198.5 million for the Central Arizona Project, of which $14.2 million will be used for modification of Roosevelt Dam under the Safety of Dams program. Also included is $98.8 million for the Central Utah Project, and $19.8 million for California's Central Valley Project.

Major activities planned for the Central Arizona Project, in addition to the Roosevelt Dam modifications, include construction for New Waddell Dam and work to substantially complete the Tucson Aqueduct and associated pumping facilities. Delivery of water to the Tucson area is scheduled to begin in 1991.

Funding for the Bonneville Unit of the Central Utah Project will be used for highway relocation, land acquisition, and Stage II construction at Jordanelle Dam and Reservoir; work on the Syar Tunnel of the Diamond Fork Power Systems; and substantial fish, wildlife, and recreation activities.

Our request for the Central Valley Project in California includes funding for continued studies to find solutions to flooding problems in the San Luis Unit, management of project lands related to the Auburn-Folsom South Unit, and cost sharing payments to the State for the protection of Suisun Marsh. Funding is also included to continue the Trinity River Restoration Program, where work will continue on rehabilitation of the main river, techniques to improve production of Chinook salmon, wildlife habitat, and land use evaluation.

The request also includes $13.4 million for Phase 1 of the Animas-LaPlata project. One of the significant benefits of this multi-purpose project is to implement the water rights settlement with several Indian tribes. Repayment contracts between the United States and the Ute Mountain Ute and Southern Ute Indian tribes, along with the cost sharing agreement with the State of Colorado, are expected to be signed this year.

Mr. Chairman, our construction request also includes $21.6 million for the North Loup Division of the Pick-Sloan Missouri Basin Program in Nebraska. Major construction of the Davis Creek Dam will be completed, as well as fish and wildlife mitigation.

It should be noted, Mr. Chairman, that we are requesting no funds for the Garrison Diversion Unit. Serious doubts exist regarding the economic viability of the irrigation portion of the project, and it is estimated that completion of the project would require in excess of $1 billion. In addition, no funding is requested for the Umatilla Basin Project and the Mni Wiconi Rural Water Supply Project.

As part of the Secretary's "Legacy '99" initiative, our construction request also calls for $67.4 million in funding for safety of dams. This could allow the initiation of corrective work on nine dams, the completion of work on one dam, and continuation of other ongoing activities. Funding of $9.1 million is also requested for a new initiative in which Reclamation will assist in managing safety of dams work on dams under the jurisdiction of the Bureau of Indian Affairs.

Also included in Reclamation's construction request is $13.3 million for science and technology activities. It places emphasis on water technology and environmental research, groundwater recharge demonstration activities, and global climate change. In addition, $2 million is requested for the completion of an inventory of wetlands on Reclamation lands and for preservation and enhancement of wetlands habitat.

Loan Program -- $5,708,000

For Reclamation's Loan Program, we are requesting $5.7 million for the continued financing of two ongoing projects and administration of the program.

General Administrative Expenses -- $51,431,000

There is $51.4 million requested for General Administrative Expenses. These funds will be used for Reclamation's central management responsibilities and for intensified efforts in the areas of combatting illegal drugs, expanding educational opportunities, increased recruitment of women and minorities, and promoting volunteerism.

Working Capital Fund -- $4,831,000

Additionally, Mr. Chairman, we are requesting $4.8 million for Reclamation's Working Capital Fund. Of this amount, $1.9 million is to be used to complete funding for computer equipment as part of the Business Systems Acquisition project.

Conclusion

Mr. Chairman, our fiscal year 1991 budget request is based upon priorities established to meet the Administration's goal for a balanced, responsible approach toward water resources management. It reflects both the Secretary's "Legacy '99" initiative and Reclamation's role as a comprehensive water resource management agency. At the same time our request is consistent with the Administration's goal of reducing the Federal deficit and meeting the requirements of the Gramm-Rudman-Hollings Act.

Thank you.

Mr. BEVILL. At this point, we will insert the justification material for the Bureau of Reclamation in the record, without objection.

[The information follows:]

PROGRAM HIGHLIGHT STATEMENT
FISCAL YEAR 1991

Reclamation Mission

The mission of the Bureau of Reclamation is to assist non-Federal entities and other Federal agencies in developing and conserving the Nation's water resources for municipal and industrial, agricultural, hydroelectric power, and recreational uses by means of environmentally and economically sound water projects in the 17 Western States in a way that will improve the quality of life and stimulate local, regional, and national economies. Under its "New Direction," Reclamation is pursuing new methods and approaches to accomplish its mission.

Reclamation Program

The proposed Reclamation program is consistent with the "New Direction" which emphasizes non-structural solutions to water resources problems, water quality improvement, wetlands restoration and enhancement, environmental protection, existing facilities and systems improvement, water research programs, and surface water conservation.

The budget authority requested for the Bureau of Reclamation's seven current accounts and the permanent appropriations total $945,115,000. An additional $93,886,000 will be contributed by non-Federal entities to Reclamation Trust Funds. The appropriations are General Investigations, Construction Program, Operation and Maintenance, Loan Program, General Administrative Expenses, Emergency Fund, and the Working Capital Fund. Reclamation's fiscal year 1991 request by appropriation is summarized below.

General Investigations

The General Investigations appropriation of $11,456,000 finances studies in the 17 Western States to identify ways to more effectively utilize water, related energy, and land resources of the West. The program addresses resource problems and needs where, as defined by law, there is a Federal role. Nine new planning studies are proposed for fiscal year 1991 which emphasize nonstructural, management, water efficiency, and conservation alternatives. This emphasis is consistent with the "new direction" of Reclamation and is supportive of the Secretary's STEWARDSHIP program. Partnership with private entities through equal sharing of study costs is an integral part of this program.

Construction Program

This program of $609,430,000 continues the construction initiative established in fiscal year 1988 to complete projects substantially underway in order to begin repayment and to make the project benefits available on the most efficient construction schedule possible within available funds.

The Science and Technology program applies unique Bureau expertise to solve water and environmental problems. The Program Related Engineering and Scientific Studies activity has been renamed the Water Technology and Environmental Research (WATER) program. The WATER program provides the initial step within the Construction Program toward accomplishing the new direction of Reclamation. The program also provides for continuing the site demonstrations for groundwater recharge and participation in examining problems associated with global climate change.

A number of projects include features that bring water and hydropower benefits to Indian groups and assist in the settlement of Indian water rights claims.

A specific Wetlands Development program will be initiated to expand Reclamation's role beyond the usual project wildlife mitigation. The Safety of Dams program will continue to take aggressive action to repair or modify unsafe dams, not only within Reclamation, but also in connection with managing the serious backlog of Safety of Dams work on dams under the jurisdiction of the Bureau of Indian Affairs. In partnership with EPA, Interior land managers, and other entities, Reclamation will provide expert management and assistance in cleaning up hazardous waste sites.

Operation and Maintenance

Adequate funding for operation and maintenance of Reclamation projects is important to insuring uninterrupted delivery of benefits and resulting revenues. This program seeks to maximize benefits from existing projects by responsible management of available water supplies through such means as a sufficient level of preventive maintenance and by encouraging joint use of facilities in partnership with non-Federal entities, and water transfers and marketing. Reclamation's new direction is supported by efforts to enhance the benefits and operations of existing projects through water conservation measures, environmental considerations, improvement of recreation opportunities, and water quality improvement measures.

The requested appropriation will allow Reclamation to continue to reduce the backlog of deferred maintenance items. This is part of the Department's 'Legacy 99' proposal, which is a multiyear effort to maintain, repair, and rehabilitate the facilities of the Department as part of Secretary Lujan's STEWARDSHIP agenda. This portion of the program will restore Reclamation's capability to manage its O&M program in a cost-effective manner that ensures the integrity and safety of project structures and facilities.

For fiscal year 1991, the Operation and Maintenance Program reflects a proposed appropriation of $231,516,000. This program level is an increase of $22.2 million over the fiscal year 1990 program level of $209,315,000 after sequestration. The requested program level will maintain projects at a high level of operational readiness in accord with established practices and continue reducing the backlog of deferred maintenance that has developed over several years.

Loan Program

The Loan Program of $5,708,000 is an important element of Reclamation's water and related resources development program. The Federal Government is involved in this program because the size and complexity of some projects are beyond the financial resources of many local entities. The proposed funding level for fiscal year 1991 will enable the ongoing Loan Program to meet scheduled commitments in fiscal year 1991 on two loans.

General Administrative Expenses

The General Administrative Expenses appropriation request of $51,431,000 finances Reclamation's management responsibilities, which are designated by law as nonreimbursable. Of the total, $50.4 million is recommended for general administration and $600,000 of no-year funds are for the fiscal year 1991 portion of GAE major acquisitions commenced in prior years. Major acquisitions are defined as non-recurring purchases of $50,000 or more for equipment, large-scale contracts for services, and capital improvements to Reclamation facilities. New major acquisitions not directly related to any specific project are included under the Working Capital Fund.

Emergency Fund

The appropriation of $1,000,000 will be used to ensure the continuous operation of all project facilities governed by the Federal Reclamation law in the event of unusual or emergency conditions, e.g., canal bank or generator failures, municipal and industrial water delivery system failures, damage to transmission lines, fires, floods, drought, or conditions causing or threatening to cause interruption in water or power service.

Working Capital Fund

The fiscal year 1991 request is $4,831,000 which includes $1.9 million for necessary computer capacity to complete a department-wide initiative which will result in a modernized payroll/personnel and accounting system. Implementation of this project will result in long-term cost savings through the use of common department-wide administrative systems. The request also provides for replacement of computer equipment and specialized equipment for geotechnical, water automation, and chemical engineering, and for remote sensing equipment ($2,278,000).

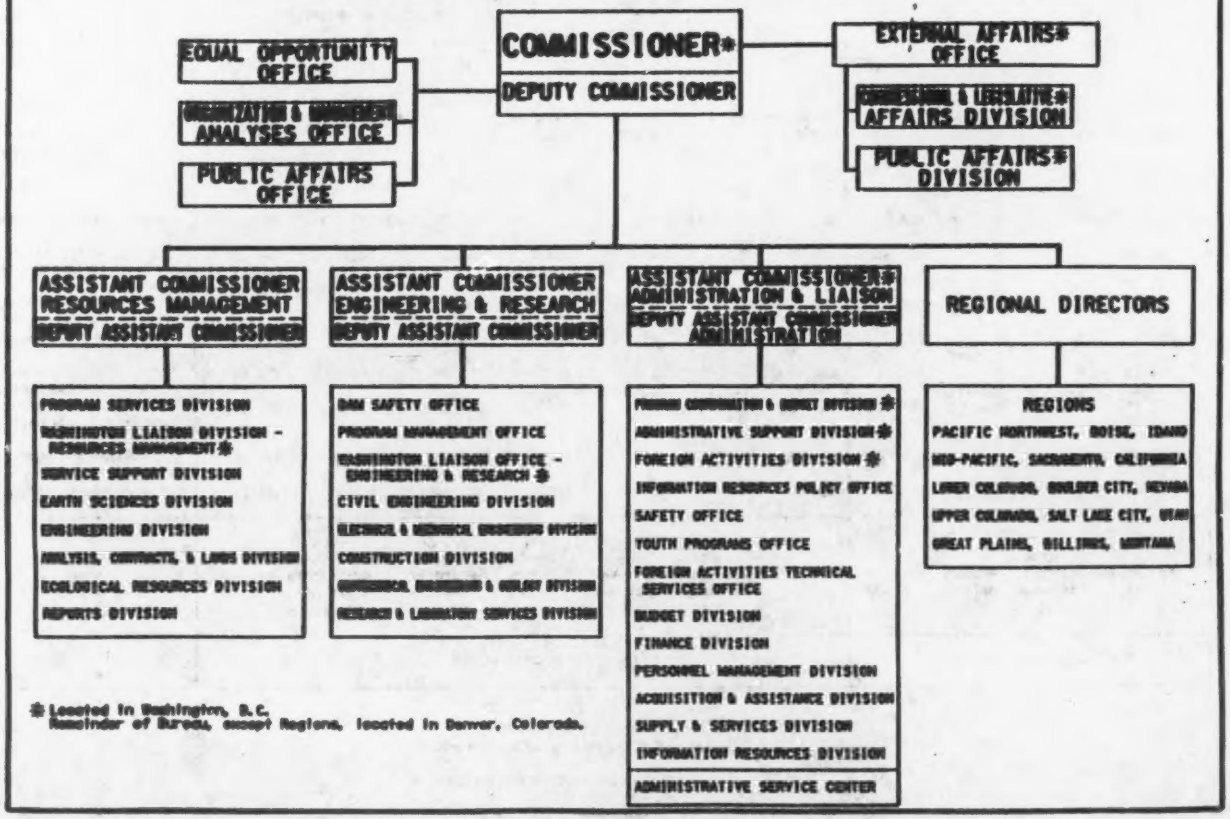
Funds also provide for constructing a soils testing facility to replace more expensive space currently being rented ($300,000), and for trucks for regional and projects offices ($333,000).

Organizational Structure

The Bureau of Reclamation, under the direction and control of the Commissioner of Reclamation, consists organizationally of the following principal segments: (1) the Office of the Commissioner in Washington, DC, (2) the Denver office at Denver, Colorado; (3) five regions divided generally by drainage basins, and (4) operating offices in the various regions.

On the next page appears a chart which represents the organizational structure that Reclamation uses to accomplish the numerous and diverse tasks included in this budget request.

BUREAU OF RECLAMATION


COMMISSIONER*
DEPUTY COMMISSIONER
EQUAL OPPORTUNITY OFFICE
ORGANIZATION & MANAGEMENT ANALYSES OFFICE
PUBLIC AFFAIRS OFFICE
EXTERNAL AFFAIRS* OFFICE
CONGRESSIONAL & LEGISLATIVE* AFFAIRS DIVISION
PUBLIC AFFAIRS* DIVISION
ASSISTANT COMMISSIONER RESOURCES MANAGEMENT
DEPUTY ASSISTANT COMMISSIONER
PROGRAM SERVICES DIVISION
WASHINGTON LIAISON DIVISION - RESOURCES MANAGEMENT*
SERVICE SUPPORT DIVISION
EARTH SCIENCES DIVISION
ENGINEERING DIVISION
ANALYSIS, CONTRACTS, & LANDS DIVISION
ECOLOGICAL RESOURCES DIVISION
REPORTS DIVISION
ASSISTANT COMMISSIONER ENGINEERING & RESEARCH
DEPUTY ASSISTANT COMMISSIONER
DAM SAFETY OFFICE
PROGRAM MANAGEMENT OFFICE
WASHINGTON LIAISON OFFICE - ENGINEERING & RESEARCH*
CIVIL ENGINEERING DIVISION
ELECTRICAL & MECHANICAL ENGINEERING DIVISION
CONSTRUCTION DIVISION
GEOTECHNICAL ENGINEERING & GEOLOGY DIVISION
RESEARCH & LABORATORY SERVICES DIVISION
ASSISTANT COMMISSIONER* ADMINISTRATION & LIAISON
DEPUTY ASSISTANT COMMISSIONER ADMINISTRATION
PROGRAM COORDINATION & BUDGET DIVISION*
ADMINISTRATIVE SUPPORT DIVISION*
FOREIGN ACTIVITIES DIVISION*
INFORMATION RESOURCES POLICY OFFICE
SAFETY OFFICE
YOUTH PROGRAMS OFFICE
FOREIGN ACTIVITIES TECHNICAL SERVICES OFFICE
BUDGET DIVISION
FINANCE DIVISION
PERSONNEL MANAGEMENT DIVISION
ACQUISITION & ASSISTANCE DIVISION
SUPPLY & SERVICES DIVISION
INFORMATION RESOURCES DIVISION
ADMINISTRATIVE SERVICE CENTER
REGIONAL DIRECTORS
REGIONS
PACIFIC NORTHWEST, BOISE, IDAHO
MID-PACIFIC, SACRAMENTO, CALIFORNIA
LOWER COLORADO, BOULDER CITY, NEVADA
UPPER COLORADO, SALT LAKE CITY, UTAH
GREAT PLAINS, BILLINGS, MONTANA

* Located in Washington, D.C.
Remainder of Bureau, except Regions, located in Denver, Colorado.

BUREAU OF RECLAMATION

SUMMARY OF BUDGET AUTHORITY BY ACCOUNT

Method of Financing FY 1990 and FY 1991
(In thousands of dollars)

Title	Fiscal Year 1990							Fiscal Year 1991			
	Appro-priation	Public Law 99-177 reduction (Gramm-Rudman)	Appropri-ation adjusted for P.L. 99-177	Prior year funds/ recover-ies	Applied revenue	Cash advances/ reimburse-ments	Total obligations	Appro-priation	Applied revenue	Cash advances/ reimburse-ments	Total obligations
General Investigations....	11,530	(161)	11,369	2,383	0	842	14,594	11,456	0	954	12,410
Construction Program......	662,120	(9,270)	652,850	26,386	0	41,229	720,465	609,430	0	91,280	700,710
Operation and Maintenance:											
Annual..................	212,287	(2,972)	209,315	2,041	0	11,274	222,630	231,516	0	11,560	243,076
Basin Funds.............	0	0	0	1,814	115,495	1,216	118,525	0	117,235	1,511	118,746
Permanent...............	60,725	(681) 1/	60,044	1,339	0	0	61,383	29,463	0	0	50,636 2/
Loan Program.............	34,122	(478)	33,644	2,823	0	0	36,467	5,708	0	0	5,708
Emergency Fund...........	1,000	(14)	986	1,114	0	0	2,100	1,000	0	0	1,000
General Administrative Expenses................	47,983	(672)	47,311	1,742	0	0	49,053	51,431	0	0	51,431
Permanent Appropriations..	282	(4) 1/	278	0	0	0	278	280	0	0	284 3/
Working Capital Fund......	8,500	(119)	8,381	18,605	0	107,376	134,362	4,831	0	107,242	112,073
Subtotal - All Appropriations	1,038,549	(14,371)	1,024,178	58,267	115,495	161,937	1,359,857	965,115	117,235	212,547	1,274,897
Trust Funds...............	54,100	(757) 1/	53,343					93,886			94,643 4/
TOTAL - ALL APPROPRIATIONS	1,092,649	(15,128)	1,077,521					1,059,001			

1/ This amount will be available for obligation in FY 1991.
2/ Includes carryover of $21,173,000, of which $681,000 is a result of P. L. 99-177.
3/ Includes carryover of $4,000 as a result of P. L. 99-177.
4/ Includes carryover of $757,000 as a result of P. L. 99-177.

GENERAL INVESTIGATIONS
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Project or Item	Activity	Office or Region *	Page Number
All American Canal Project	Advance Planning	LC	69
American River/Folsom South Conjunctive Use Opt. Project	Project Investigation	MP	14
Arkansas River Water Management Improvement Study	Special Investigation	GP	15
Colorado River Recharge Study	Special Investigation	LC	16
Colorado River Water Quality Improvement Program (CRWQIP).	Project Investigation	LC,UC	17
CRWQIP - Glenwood-Dotsero Springs Unit	Project Investigation	UC	18
CRWQIP - Las Vegas Wash Unit	Project Investigation	LC	19
CRWQIP - Other Project Investigations & Program Coord.	Project Investigation	UC	20
CRWQIP - Price-San Rafael Rivers Unit	Project Investigation	UC	21
CRWQIP - San Juan River Unit	Project Investigation	UC	22
CRWQIP - Support Division	Project Investigation	LC	23
CRWQIP - Uncompahgre Project System Optimization	Project Investigation	UC	24
Delta Water Management	Project Investigation	MP	25
Deschutes River Basin Water Salvage (see Upper Deschutes).	Project Investigation	PN	59
Drought Investigations	Special Investigation	DO	26
Environmental and Interagency Coordination Activities	Special Investigation	All	27
Flathead River Basin	Special Investigation	PN	28
Four Corners Water Assessment	Special Investigation	UC	29
General Planning Studies	Special Investigation	DO	30
General Statement	General Investigation	--	10
Gregory County Hydroelectric Pumped Storage	Project Investigation	GP	31
High Mountain Aquifer Study	Special Investigation	GP	32
Idaho River Systems Management	Special Investigation	PN	33
Indian Wells Valley Groundwater Project.	Special Investigation	LC	34
Investigations of Existing Projects.	Special Investigation	All	35
Itemization of Estimates	General Investigation	All	85
Josephine County Water Management Study.	Project Investigaion	PN	36
Kansas River Basin Water Management Study	Special Investigation	GP	37
Kellogg Unit	Advance Planning	MP	72
Loup River Basin	Special Investigation	GP	38
Lower Colorado River Basin TWM Study	Special Investigation.	GP	39
Method of Financing	General Investigations	--	11
Minidoka, Northside Pumping Division Drainwater Mgmnt.	Project Investigation	PN	40
Minor Work on Completed Project Investigations	Special Investigation	All	41

GENERAL INVESTIGATIONS
Index - 2

Project or Item	Activity	Office or Region *	Page Number
New Mexico Regional Water Resources Study	Special Investigation	UC	42
Northern Douglas County Co-op Water Resources Study	Project Investigation	PN	43
Northern Nevada Water Augmentation Program	Project Investigation	MP	44
Northwest Oklahoma Water Supply	Project Investigation	GP	45
Offstream Storage	Project Investigation	MP	46
Prairie Bend Unit	Advance Planning	GP	74
Refuge Water Supplies	Project Investigation	MP	47
Refuge Water Supplies	Advance Planning	MP	77
San Bernardino Valley Ground Water Project (see Santa Ana)	Special Investigation	LC	51
San Joaquin River Basin Resource Management Initiative	Project Investigation	MP	49
San Joaquin Valley Conveyance Study	Project Investigation	MP	50
San Joaquin Valley Conveyance Study	Advance Planning	MP	79
Santa Ana Watershed Mgmt. Study (formerly San Bernardino)	Special Investigation	LC	51
Seminoe Dam Modification	Special Investigation	GP	52
Sevier River Water Management Study	Special Investigation	UC	53
Small Project Integration with CVP	Project Investigation	MP	54
South Platte River Operations Study	Special Investigation	GP	55
Technical Assistance to States	Special Investigation	All	56
Teton Dam Reappraisal	Special Investigation	PN	57
Toxic Constituent Studies	Special Investigation	DO	58
Umatilla Basin Project	Advance Planning	PN	82
Upper Deschutes River Basin Water Conservation Project	Project Investigation	PN	59
Upper Gunnison Uncompahgre Basin Project	Project Investigation	UC	60
Upper John Day Water Optimization Project	Project Investigation	PN	61
Upper San Pedro River Optimization Study	Special Investigation	LC	62
Upper Snake River Basin Storage	Special Investigation	PN	63
Utah Area Water Demand Model	Special Investigation	UC	64
Willamette River Basin Study	Project Investigation	PN	65
Wind River Basin Study	Project Investigation	GP	66
Yakima River Basin Water Enhancement Project	Project Investigation	PN	67

* Regional Offices:

PN - Pacific Northwest, Boise, Idaho
MP - Mid-Pacific, Sacramento, California
LC - Lower Colorado, Boulder City, Nevada
GP - Great Plains, Billings, Montana
UC - Upper Colorado, Salt Lake City, Utah

Other Offices: DO - Denver Office, Denver, Colorado

GENERAL INVESTIGATIONS

General Statement

Summarized Financial Data:

Fiscal Year 1990:		
Appropriation (Reflects P.L. 99-177 reduction of $-166,000) . . .	$ 11,369,000	
Application of Prior Year Funds	2,383,029	
Non-Federal Participation - Cash	842,000	
Total Obligations, Fiscal Year 1990		$14,594,029
Non-Federal Participation - Services	2,839,000	
Total Program, Fiscal Year 1990		$17,433,029
Fiscal Year 1991:		
Estimate of Appropriation	$ 11,456,000	
Non-Federal Participation - Cash	954,000	
Total Obligations, Fiscal Year 1991		$12,410,000
Non-Federal Participation - Services	2,999,000	
Total Program, Fiscal Year 1991		$15,409,000

The appropriation for the General Investigations activity provides for planning for the management, conservation, and development of water and related land resources throughout the 17 Western States.

This program primarily now contains initiatives proposed in the "Assessment 87 . . . A New Direction for the Bureau of Reclamation". This direction recognizes that water problems still exist, but deemphasizes the development of major structures as the primary solution. Application of a full range of innovative water management alternatives to solve water resource problems in less capital-intensive ways is a major goal of this program.

The activity breakdown of work proposed in FY 1991 compares with the program for FY 1990 as shown in the "Method of Financing FY 1990 and FY 1991".

BUREAU OF RECLAMATION
GENERAL INVESTIGATIONS PROGRAM

Method of Financing FY 1990 and FY 1991

Project or Study	Fiscal Year 1990				Fiscal Year 1991		
	Allocation of Funds	Prior year funds applied	Non-Federal contri-butions	Total Program	Allocation of Funds	Non-Federal contri-butions	Total Program
PLAN FORMULATION							
American River Folsom So. Optimization	0		0	0	50,000	50,000	100,000
Arkansas River Water Mgmnt. Improv.	394,000		150,000	544,000	240,000	150,000	390,000
Colorado River Water Quality Impv. Pro	1,155,000	103,916	0	1,258,916	935,000	0	935,000
Colorado River Recharge Study	99,000	2,000	99,000	200,000	30,000	141,000	171,000
Delta Water Management	0	81,769	0	81,769	0	0	0
Deschutes Project	79,000		80,000	159,000	290,000	290,000	580,000
Drought Investigation Program	0		0	0	220,000	0	220,000
Environmental & Interagency Coord.	2,909,000	224,378	0	3,133,378	2,699,000	0	2,699,000
Flathead River Basin	47,000	12,000	48,000	107,000	215,000	215,000	430,000
Four Corners Water Assessment	62,000	15,000	125,000	202,000	150,000	150,000	300,000
General Planning Studies	737,000	33,858	0	770,858	875,000	0	875,000
Gregory County Hydroelectric	0	93,000	150,000	243,000	0	0	0
High Mountain Aquifer	2,000		3,000	5,000	0	0	0
Idaho River Systems Management	0		0	0	75,000	75,000	150,000
Indian Wells Valley Groundwater	173,000	5,000	173,000	351,000	175,000	175,000	350,000
Investigation of Existing Projects	589,000	44,187	85,000	718,187	390,000	0	390,000
Josephine County Water Management	286,000	15,000	200,000	501,000	200,000	200,000	400,000
Kansas River Basin	0	35,000	0	35,000	0	0	0
Loup River Basin	0	25,000	0	25,000	0	0	0
Lower Colorado River Basin TWM Study	197,000		150,000	347,000	200,000	200,000	400,000
Minidoka Northside Drainage	0		50,000	50,000	80,000	50,000	130,000
Minor Work on Completed Investigations	416,000	56,620	0	472,620	321,000	175,000	596,000

Method of Financing FY 1990 and FY 1991

Project or Study	Fiscal Year 1990				Fiscal Year 1991		
	Allocation of Funds	Prior year funds applied	Non-Federal contri-butions	Total Program	Allocation of funds	Non-Federal contri-butions	Total Program
PLAN FORMULATION (continued)							
New Mexico Regional Water Resource	0		0	0	200,000	250,000	450,000
Northern Douglas County Water	170,000	189,000	220,000	579,000	50,000	47,000	97,000
Northern Nevada Water Augmentation	212,000	9,519	215,000	436,519	180,000	180,000	360,000
Northwest Oklahoma Water Supply	0	158,000	0	158,000	0	0	0
Offstream Storage	61,000	90,204	0	151,204	0	0	0
Refuge Water Supplies	0	12,553	0	12,553	0	0	0
San Joaquin River Basin Resource	0		0	0	200,000	200,000	400,000
San Joaquin Valley Conveyance	0	7,564	0	7,564	0	0	0
Santa Ana Watershed Management	136,000	1,000	207,000	344,000	99,000	193,000	292,000
Seminoe Dam	99,000		100,000	199,000	0	0	0
Sevier River Water Management	99,000	3,000	120,000	222,000	120,000	120,000	240,000
Small Project Integration with CVP	0		0	0	60,000	60,000	120,000
South Platte River Operartions Study	37,000	15,000	0	52,000	0	0	0
Technical Assistance to States	1,536,000	57,000	82,000	1,675,000	1,350,000	0	1,350,000
Teton Dam Reappraisal	148,000		148,000	296,000	0	0	0
Toxic Constituent Studies	99,000		0	99,000	265,000	0	265,000
Upper Gunnison-Uncompahgre Basin	192,000	34,000	300,000	526,000	280,000	420,000	700,000
Upper John Day Project	212,000	5,000	135,000	352,000	250,000	100,000	350,000
Upper San Pedro River Optimization	0		0	0	75,000	75,000	150,000
Upper Snake River Water Management	153,000		100,000	253,000	125,000	125,000	250,000
Utah Area Water Demand Model	49,000		150,000	199,000	100,000	175,000	275,000
Willamette River Basin	187,000	57,000	218,000	462,000	180,000	100,000	280,000
Wind River Basin Study	0		0	0	37,000	37,000	74,000
Yakima River Basin	700,000	416,000	0	1,116,000	540,000	0	540,000
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Subtotal - Plan Formulation	$11,235,000	$1,801,568	$3,308,000	$16,344,568	$11,456,000	$3,953,000	$15,409,000

Method of Financing FY 1990 and FY 1991

Project or Study	Fiscal Year 1990				Fiscal Year 1991		
	Allocation of Funds	Prior year funds applied	Non-Federal contri-butions	Total Program	Allocation of funds	Non-Federal contri-butions	Total Program
ADVANCE PLANNING							
All American Canal	0	377,000	0	377,000	0	0	0
Kellogg Unit	25,000	12,461	173,000	210,461	0	0	0
Prairie Bend Unit	0	150,000	0	150,000	0	0	0
Refuge Water Supplies	13,000		65,000	78,000	0	0	0
San Joaquin Valley Conveyance	96,000		135,000	231,000	0	0	0
Umatilla Basin Project	0	42,000	0	42,000	0	0	0
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Subtotal - Advance Planning	$134,000	$581,461	$373,000	$1,088,461	$0	$0	$0
TOTAL - GENERAL INVESTIGATIONS PROGRAM	$11,369,000	$2,383,029	$3,681,000 1/	$17,433,029	$11,456,000	$3,953,000 2/	$15,409,000

1/ Includes $ 842,000 cash and $ 2,839,000 in-kind-services

2/ Includes $ 954,000 cash and $ 2,999,000 in-kind-services

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project		State
Mid-Pacific	American River/Folsom South Conjunctive Use Optimization		California
Initiation	**Completion**	**Percentage Cost Sharing**	**Type of Study**
FY 1991	FY 1994	50	Project Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 250,000	$ --	$ --	$ 50,000	$ 200,000
Non-Federal:	250,000	--	--	50,000	200,000
Other Federal:	--	--	--	--	--
Total	$ 500,000	$ --	$ --	$ 100,000	$ 400,000

Description of Study

The study would involve the coordinated operation of the Folsom Reservoir Project of the Central Valley Project (CVP), Lower American River, and adjacent areas in Sacramento and San Joaquin Counties.

This conjunctive use study would evaluate plans for concurrent surface and groundwater use from existing storage developments at Folsom Reservoir, Pardee, Comanche and other tributary streams to meet Folsom South area water needs and provide suitable instream flows for fishery and recreation purposes in the lower American River. This comprehensive study would enable more specific identification of operations and facilities to assist Reclamation's American River water contracting program.

The study could establish water management plans for utilizing the available resources for areas in Sacramento and San Joaquin Counties from the American to the Mokelumne Rivers.

The study would be funded with 50 percent cost sharing from the Central Valley water users, the City of Folsom, San Juan Suburban Water District, City and County of Sacramento, the State of California Water Resources Control Board and Department of Water Resources, East Bay Municipal Utility District, and San Joaquin County.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project		State
Great Plains	Arkansas River Water Management Improvement Study		Kansas
Initiation	**Completion**	**Percentage Cost Sharing**	**Type of Study**
FY 1989	FY 1992	38	Special Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 990,000	$ 122,575	$ 394,000	$ 240,000	$ 233,425
Non-Federal:	625,000	175,000	150,000	150,000	150,000
Other Federal:	--	--	--	--	--
Total	$ 1,615,000	$ 297,575	$ 544,000	$ 390,000	$ 383,425

Description of Study

The study area is located in south-central Kansas within the Arkansas River Basin from Hutchison downstream to Wichita, Kansas. There is a potential for poor quality streamflow in the Arkansas River between Hutchison and Wichita to contaminate the water quality in the adjacent alluvial aquifer. Available information gathered by the USGS indicates that a hydraulic connection may exist between the river and the aquifer, and that there could be a difference of up to 1,800 mg/l total dissolved solids between the river water and the water in the aquifer. However, no quantitative definition of the streamflow/aquifer interaction is available to determine the effect of the Arkansas River on the alluvial aquifer.

In this Basin, where 70 percent of the water use is for irrigation and which also contains the largest urban area in the State, the need to plan for adequate quantities of good quality water for all purposes is great. Future groundwater quality degradation would have a serious impact on the availability of water for municipal and industrial purposes, especially from the Equus Beds aquifer that supplies water to the Wichita metroplex. There is also a potential for water conservation and improved efficiencies of water use through management efforts within this area. Studies are warranted to define the extent of this problem. Based on the findings, there may be a need to develop potential solutions to correct or stabilize any contamination.

This study is supported by the Kansas Water Office, Kansas Water Authority, city of Wichita, and Equus Beds Groundwater Management District No. 2. Potential for cost-sharing and in-kind services appears favorable pending appropriation of funding by the State Legislature.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project	State
Lower Colorado	Colorado River Recharge Study	California - Nevada

Initiation	Completion	Percentage Cost Sharing	Type of Study
FY 1989	FY 1992	50	Special Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 280,000	$ 122,154	$ 101,000	$ 30,000	$ 26,846
Non-Federal:	280,000	40,000	99,000	141,000	--
Other Federal:	--	--	--	--	--
Total	$ 560,000	$ 162,154	$ 200,000	$ 171,000	$ 26,846

Description of Study

The project will study potential recharge areas located in southern California, primarily along the All American and Coachella Canals, and along the Robert B. Griffith Water System in southern Nevada. The portion involving areas along the Central Arizona Project has been discontinued because to areas of potential recharge value are already being investigated by local entities.

Water supply problems are are projected in the near future for southern California. Analyses of current information on water demand and potential new supplies and facilities indicate shortages of 630,000 acre-feet annually by the year 2000. Recharge may also provide for short term peaking capacity or long term water supply needs in southern Nevada.

One source of recharge, excess Colorado River flows, presents an opportunity for diversion, recharge, and storage in aquifers adjacent to existing canals and aqueducts for use during shortage conditions. About 40 million acre-feet spill during excess flow years in a 20 year period. Other sources for recharge water could include regulatory spills, seasonal storage, or unused entitlement.

The investigation will be 50 percent cost shared by the Colorado River Board of California, and the Las Vegas Valley Water District.

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project	State
UC,LC	CRWQIP Colorado River Water Quality Improvement Program	various

Initiation	Completion	Percentage Cost Sharing	Type of Study
FY 1972	ongoing	0	Project Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 43,726,650	$ 36,451,523	$ 1,258,916	$ 935,000	$ 5,081,211
Non-Federal:	--	--	--	--	--
Other Federal:	--	--	--	--	--
Total	$ 43,726,650	$ 36,451,523	$ 1,258,916	$ 935,000	$ 5,081,211

Description of Study

This sheet summarizes information contained on pages 17 through 24 where detailed information can be found on individual program segments.

The Colorado River Water Quality Improvement Program is located in the Colorado River Basin in Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming. The purpose of this investigation is to develop a comprehensive, cost-effective program for salinity control in the Colorado River Basin. Salinity standards, including numeric criteria for the lower mainstem, were established in 1975 and reviewed in 1978, 1981, 1984, and 1987. Additional development of the basin's water resources would generate increases in the salinity levels and consequent violations of the standards unless salinity control measures are implemented. Natural sources contribute the largest share of salt loading. Municipal and industrial uses make minor contributions. The salt load is concentrated into smaller volumes of water by out-of-basin exports, evapotranspiration by irrigated crops, and evaporation from free-water surfaces, further increasing salinity concentrations.

The program is identifying individual problem areas, developing alternative control plans, and recommending remedial action.

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project	State
Upper Colorado	Glenwood-Dotsero Springs Unit Colorado River Water Quality Improvement Program	Colorado

Initiation	Completion	Percentage Cost Sharing	Type of Study
FY 1989	FY 1991	0	Project Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 510,050	$ 30,050	$ 360,000	$ 120,000	$ --
Non-Federal:	--	--	--	--	--
Other Federal:	--	--	--	--	--
Total	$ 510,050	$ 30,050	$ 360,000	$ 120,000	$ --

Description of Study

The Glenwood-Dotsero Springs Unit is located in west-central Colorado in Eagle, Garfield, and Mesa Counties along the Colorado River.

Reclamation conducted a study of the unit in 1986 and developed a plan for evaporation of the brine. The study was concluded because the cost per ton of salt removed was slightly higher than the acceptable limit. Under Colorado water law, evaporation of brine as a salinity control method is not considered a beneficial use of water. Efforts have continued to find commercial users of the saline water.

Private development firms proposed studies entitled Glenwood Springs Cogeneration and Desalinization Study. The purpose is to determine if a cogeneration facility could be developed which would provide energy, desalinization of brine, and fresh water, at a cost that would be financially attractive to the developer and the Federal government.

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project	State
Lower Colorado	Las Vegas Wash Unit Colorado River Water Quality Improvement Program	Nevada

Initiation	Completion	Percentage Cost Sharing	Type of Study
FY 1989	FY 1995	0	Project Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 360,000	$ 1,288	$ 55,000	$ 56,000	$ 247,712
Non-Federal:	--	--	--	--	--
Other Federal:	--	--	--	--	--
Total	$ 360,000	$ 1,288	$ 55,000	$ 56,000	$ 247,712

Description of Study

The Las Vegas Wash Unit was one of four salinity control projects authorized by P.L. 93-320. In 1978 Reclamation began a planning initiative to develop a cost-effective and acceptable salinity control strategy. Four strategies evolved over the planning period: groundwater collection, groundwater prevention, groundwater flow reduction, and no action. Groundwater collection was found to be not cost effective; groundwater prevention was found to be unacceptable to local entities; and groundwater flow reduction was found to be ineffective.

Because of unresolved issues and lack of consensus among local entities, Reclamation has postponed any further active efforts to implement a salinity reduction program for the Las Vegas Wash. Final documentation of Reclamation planning efforts is under review. Continued monitoring of salinity in the Wash at a low funding level is planned. This endeavor will consist of quarterly collection and analysis of water samples from various locations in the Wash. Water quality data will be evaluated and reported annually. This minimal effort will result in maintenance of a continuous record and permit identification and tracking of any trends in water quality.

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project		State
Upper Colorado	Other Project Investigations and Program Coordination Colorado River Water Quality Improvement Program		various
Initiation	Completion	Percentage Cost Sharing	Type of Study
FY 1972	Ongoing	0	Project Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 FY 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 32,355,729	$ 27,543,729	$ 407,000	$ 405,000	$ 4,000,000
Non-Federal:	--	--	--	--	--
Other Federal:	--	--	--	--	--
Total	$ 32,355,729	$ 27,543,729	$ 407,000	$ 405,000	$ 4,000,000

Description of Study

Other Project Investigations from the Upper and Lower Colorado Regions have been combined in this schedule with the Colorado River Water Quality Office Program Coordination and Support in the Denver Office. The Water Quality Office has been reorganized and absorbed into the Assistant Commissioner - Resources Management Denver Office organization.

Studies completed to date include work in the Upper Colorado Region and Lower Colorado Region associated with the Irrigation Management Services, Support Studies, Utilizing Return Flow Division, Point Source Division, and Irrigation Source Division. Continuing activities include funding for studies anticipated to address new technology and unidentified cost-effective salt load reduction opportunities including, but not limited to, diffuse source control studies and industrial use and congeneration/desalination opportunities in the basin.

The Colorado River Salinity Program Coordinator coordinates and monitors the overall basinwide program using other funds with the Upper and Lower Colorado Regions and other Federal agencies in consultation with the Colorado River Basin Salinity Control Forum and the Colorado River Basin Salinity Control Advisory Council to meet the salt load reduction schedule that the numeric criteria requires. These continuing activities entail coordination of technical, policy, and legislative initiatives; Colorado River Simulation System estimates for salt load reduction criteria; development of ranking criteria for potential projects based on cost effectiveness evaluation; consolidation of basinwide plan formulation, preconstruction, and construction programs and budget; and research and verification activities to meet program goals.

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project	State
Upper Colorado	Price-San Rafael Rivers Unit Colorado River Water Quality Improvement Program	Utah

Initiation	Completion	Percentage Cost Sharing	Type of Study
FY 1972	FY 1991	0	Project Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 4,545,052	$ 4,445,052	$ 50,000	$ 50,000	$ --
Non-Federal:	--	--	--	--	--
Other Federal:	--	--	--	--	--
Total	$ 4,545,052	$ 4,445,052	$ 50,000	$ 50,000	$ --

Description of Study

The Price-San Rafael Rivers Unit is located in east-central Utah within Carbon and Emery Counties. It includes the drainage areas of the Price and San Rafael River Basins of approximately 3,600 square miles. An estimated 430,000 tons of salt annually reach the Colorado River from these two river basins.

Studies on the Price and San Rafael River Basins identified sources and causes of salt contribution to the Colorado River System. In addition, alternative plans were evaluated, and a preferred plan for reducing salt loading was selected. The preferred plan consisted of lining stock watering ponds to improve winter watering practices. However, at the request of the Colorado River Basin Salinity Control Forum, Reclamation and the Soil Conservation Service are evaluating a combined plan. This plan would include off-farm and on-farm improvements to develop a pressurized sprinkler irrigation system. Salt loading would be reduced through a reduction in deep percolation. Reclamation would be responsible for off-farm improvements and the Soil Conservation Service for on-farm improvements.

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project	State
Upper Colorado	San Juan River Unit Colorado River Water Quality Improvement Program	Arizona, Colorado, Utah, New Mexico

Initiation	Completion	Percentage Cost Sharing	Type of Study
FY 1986	FY 1991	0	Project Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 1,837,568	$ 1,537,568	$ 200,000	$ 100,000	$ --
Non-Federal:	--	--	--	--	--
Other Federal:	--	--	--	--	--
Total	$ 1,837,568	$ 1,537,568	$ 200,000	$ 100,000	$ --

Description of Study

The San Juan River Unit is located in the San Juan River Basin, and flows from the river's headwaters in south-central Colorado, through northwestern New Mexico, to its mouth at Lake Powell in southeastern Utah. Potentially the San Juan River Unit could further the objectives of removing salt from the Colorado River system. Preliminary studies indicate that irrigation system improvements on the Hammond Project may offer a cost-effective salinity control option. Irrigation system improvements would consist of lining sections of the existing Main Canal, the East and West Highline Laterals, and the Gravity Extension Lateral to reduce seepage and salt loading from the project. In addition, other sources of salt loading such as irrigation projects on the Navajo Nation and natural sources near the Hogback area may prove to be controllable after further investigation.

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project	State
Lower Colorado	Support Division Colorado River Water Quality Improvement Program	Arizona, Nevada, California

Initiation	Completion	Percentage Cost Sharing	Type of Study
FY 1972	Ongoing	0	Project Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 3,868,251	$ 2,893,836	$ 61,916	$ 79,000	$ 833,499
Non-Federal:	--	--	--	--	--
Other Federal:	--	--	--	--	--
Total	$ 3,868,251	$ 2,893,836	$ 61,916	$ 79,000	$ 833,499

Description of Study

Support studies in the Lower Colorado Region included high recovery pretreatment desalting field studies. Research and Verification activities and contracts on reservoir salt precipitation and evaporation and analysis of water chemistry data to isolate changes in basin salt loading were completed in fiscal year 1984. Research and verification activities in fiscal years 1986 through 1989 included continuing water characterization studies and work on saline water cooling system technology. Funds in fiscal year 1990 and 1991 will provide for limited work on the Colorado River model and data base, monitoring and data collection, salinity problem identification, and program development.

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project		State
Upper Colorado	Uncompahgre Project Systems Optimization Study Colorado River Water Quality Improvement Program		Colorado
Initiation	Completion	Percentage Cost Sharing	Type of Study
FY 1990	FY 1991	0	Project Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 250,000	$ --	$ 125,000	$ 125,000	$ --
Non-Federal:	--	--	--	--	--
Other Federal:	--	--	--	--	--
Total	$ 250,000	$ --	$ 125,000	$ 125,000	$ --

Description of Study

The Uncompahgre Project Systems Optimization Study encompasses the Uncompahgre River Valley in Montrose and Delta Counties in west-central Colorado. The Uncompahgre Project, developed in the 1900's, provides irrigation water to approximately 86,000 acres of irrigable land.

Because of the deteriorated condition of many of the Uncompahgre Project facilities and because most of the canals and laterals are not lined, a continuous leaching of salt occurs as water seeps through the shale derived soils. Groundwater, transporting the dissolved salts, eventually makes its way to the Uncompahgre River and in turn to the Gunnison and Colorado Rivers. A conventional solution to this kind of salinity problem has been lining of the delivery system with an impermeable lining or piping the canals and laterals. Estimates indicate that lining or piping the facilities would reduce the seepage losses by about 22,000 acre-feet which in turn would reduce salt contributions to the Colorado River by approximately 70,000 tons annually. This solution will be examined along with less conventional concepts.

An implementation plan would be developed whereby project costs would be allocated to salinity control, system rehabilitation and betterment, and potentially the reuse of salvaged water. This approach will allow a multi-purpose concept to provide cost savings to each purpose and allow each purpose to find economic viability in the joint project.

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project		State
Mid-Pacific	Delta Water Management		California
Initiation	**Completion**	**Percentage Cost Sharing**	**Type of Study**
FY 1987	FY 1990	52	Project Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 1,259,401	$ 1,177,632	$ 81,769	$ --	$ --
Non-Federal:	1,368,000	1,368,000	--	--	--
Other Federal:	--	--	--	--	--
Total	$ 2,627,401	$ 2,545,632	$ 81,769	$ --	$ --

The 37,000 acres of water surface and over 1,000 miles shoreline in the Sacramento-San Joaquin Delta offer recreation, navigation and agriculture benefits and provide vital nursery areas for anadramous striped bass, salmon, Chinock, salmon, and American shad, as well as year-round habitat for wildlife, warm-water fisheries and several rare, threatened and endangered species. Though the Delta Water Management Study, plans are being formulated that provide environmental benefits (fishery, wildlife, recreation, and vegetation), improve water supply reliability and Central Valley Project efficiency, deliver needed Sacramento River water to the project export pumps, and provide relief to water supply concerns (levels, circulation, flood protection, and quality). To effectively manage the many water supply concerns, planning has focused on localized areas with similar issues - the north, south, and west.

A need exists to protect Delta water quality and improve fishery conditions. To deliver needed water supplies to the San Joaquin Valley and Southern California, Sacramento River water must pass through the Delta channels to pumps in the southern Delta. This stresses the existing levee system, the fisheries and wildlife, and with the existing delivery route, the water levels and quality. A plan which would deliver water south through the Delta also would provide a firm water supply for the Central Valley Project both for uses in the Delta--including the salinity repulsion, and south-of-Delta uses--municipal, industrial, agricultural and recreational.

The State of California is leading the effort to improve the cross-Delta transfer system, and is funding over half of the planning cost. Participation of local interests is also possible. An administrative draft Environmental Report/Environmental Impact Statement/Planning Report is being reviewed with the draft scheduled for release in mid 1990 for the South Delta. North Delta documents will follow within six months.

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project		State
Denver Office	Drought Investigations		Various
Initiation	**Completion**	**Percentage Cost Sharing**	**Type of Study**
FY 1991	ongoing	0	Special Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 1,640,000	$ --	$ --	$ 220,000	$ 1,420,000
Non-Federal:	--	--	--	--	--
Other Federal:	--	--	--	--	--
Total	$ 1,640,000	$ --	$ --	$ 220,000	$ 1,420,000

Description of Study

The Reclamation States Drought Assistance Act, part of Public Law 100-38, authorized the Secretary of the Interior to perform studies to augment, use, or conserve water supplies available to Federal Reclamation projects.

Future drought conditions need to be anticipated to minimize the adverse impacts. As water supplier, and because of technical expertise of Reclamation staff, it is an appropriate agency to fulfill the intent of Congress in responding to future droughts.

In order to anticipate future droughts and thereby plan activities that may help reduce impacts of future droughts, studies have been included in the 1991 program in the following areas: identification of legal and institutional constraints, water banking, drought severity levels and climate, and acceptable shortage criteria for water users.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project	State
Interregional	Environmental and Interagency Coordination Activities	Various

Initiation	Completion	Percentage Cost Sharing	Type of Study
ongoing	ongoing	0	Special Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 5,832,378	$ --	$ 3,133,378	$ 2,699,000	$ --
Non-Federal:	--	--	--	--	--
Other Federal:	--	--	--	--	--
Total	$ 5,832,378	$ --	$ 3,133,378	$ 2,699,000	$ --

Description of Study

The advent of the National Environmental Policy Act of 1969 and various administration initiatives concerning water resources planning standards has required increased work internally as well as coordination and technical studies by agencies that have primary responsibility for environmental and other matters. Work in this category, underway or anticipated, is composed of the following items: a joint effort with the National Weather Service to develop revised probable maximum precipitation values for the Western United States; review and comment on other agency negotiations and public hearings; participation and preparation of information for various public groups; participation on State and Federal study items; short-term unanticipated technical studies required by a wide range of administrative and congressional entities; preliminary examination of local problems and needs; preparation and review of plans of study and related documents on proposed investigations; correspondence and direct public inquiries; accomplishments of cooperative programs with Geological Survey for collecting, analyzing, and publishing streamflow data; participation on energy coordination activities; the review of Public Law 566 projects for the Department of Agriculture; review of wild and scenic river proposals; ensuring periodic in-house review of procedures for evaluating and formulating natural resource projects.

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project		State
Pacific Northwest	Flathead River Basin Storage Optimization Study		Montana
Initiation	Completion	Percentage Cost Sharing	Type of Study
FY 1990	FY 1993	50	Special Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 495,000	$ --	$ 59,000	$ 215,000	$ 221,000
Non-Federal:	495,000	--	48,000	215,000	232,000
Other Federal:	--	--	--	--	--
Total	$ 990,000	$ --	$ 107,000	$ 430,000	$ 453,000

Description of Study

This special investigation is addressing the multiple water needs and water uses of the Flathead River basin and related portions of the Clark Fork drainage in western Montana. The study area is the most water abundant basin in Montana. However, there are conflicting water needs, both consumptive and nonconsumptive. Beneficiaries of an optimization program would be in the functions of instream flow, hydropower peaking generation, and supplemental irrigation.

Reclamation's Hungry Horse Reservoir, with an active capacity of nearly 3 million acre-feet, is the principal storage facility in the Flathead River basin. In addition, Flathead Lake, a short distance downstream, has an active storage capacity of more than a million acre-feet. These two sites represent most of the storage in the basin. Although, the Flathead River discharges an average of 8.5 million annually into the Clark Fork River, there are few, if any, undeveloped storage sites with good prospects for development.

Reclamation is cooperating with the Montana Department of Natural Resources and Conservation and other interests in reviewing the potential for optimizing river system operations. There are significant constraints on reservoir operation, including power generation at the site and at 19 downstream powerplants, as well as major flood control responsibilities. Options and capabilities for meeting future needs for instream flows, supplemental irrigation, power needs, and recreation and other needs will be evaluated. Operational and nonstructural solutions will be emphasized. The relationship of water needs and resources to water-related concerns of the Confederated Salish-Kootenai Tribes will also be considered. At the same time, the impacts on the system and the potential trade-offs from meeting each of these needs will be quantified. The State of Montana is a study partner and is providing cooperative technical assistance. Program priorities of Federal/non-Federal cooperation in enhancing efficient and effective management of existing water resources will be advanced by the study.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region Upper Colorado	Project Four Corners Water Assessment		State Arizona, Colorado, New Mexico, Utah
Initiation FY 1990	Completion FY 1993	Percentage Cost Sharing 50	Type of Study Special Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 440,000	$ --	$ 77,000	$ 150,000	$ 213,000
Non-Federal:	425,000	--	125,000	150,000	150,000
Other Federal:	--	--	--	--	--
Total	$ 865,000	$ --	$ 202,000	$ 300,000	$ 363,000

Description of Study

The Four Corners Water Assessment encompasses the San Juan and Dolores River Basins located in the States of Colorado, New Mexico, Utah, and Arizona.

The study will investigate and recommend more effective management and use of water resources in the Four Corners area. Portions of the area now have an adequate water supply while other areas have little or no supply. The study will identify where water conservation would be possible; where water supply systems could be integrated, optimized, and made more reliable; where joint use of Federal and non-Federal facilities can be realized; where conjunctive use of groundwater and surface water could make a more efficient use of each resource. The study would characterize water quality and environmental problems associated with water development and supply facilities.

The Colorado Water Resources and Power Development Authority, Southwestern Water Conservation District Board, city of Farmington, New Mexico, the Public Service Company of New Mexico, as well as others have committed to cost-sharing and in-kind services to the study.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project		State
Denver office	General Planning Studies		Various
Initiation	Completion	Percentage Cost Sharing	Type of Study
ongoing	ongoing		Special Investigation

Summarised Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 9,250,506	$ 2,019,648	$ 770,858	$ 875,000	$ 5,585,000
Non-Federal:	--	--	--	--	--
Other Federal:	--	--	--	--	--
Total	$ 9,250,506	$ 2,019,648	$ 770,858	$ 875,000	$ 5,585,000

Description of Study

The purpose of these studies is to develop improved technical procedures for planning and evaluating alternative solutions and to train personnel in the application of the new procedures to the ongoing program. The program of study includes economic analyses of water development for long-term benefit projections, improvements of land classification techniques, resolving sedimentation and hydrologic problems, development of improved public involvement and social factors analyses techniques, and development and implementation of risk evaluation procedures.

The funds will be used for: (1) the review and development of planning program policies for the Office of the Commissioner; (2) the preparation, revision, and issuance of technical guidelines for conducting the technical phases of resources planning; and (3) participation in special studies requested by other natural resource agencies.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project		State
Great Plains	Gregory County Hydroelectric Pumped Storage		South Dakota
Initiation	Completion	Percentage Cost Sharing	Type of Study
FY 1989	FY 1990	50	Project Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 290,507	$ 197,507	$ 93,000	$ --	$ --
Non-Federal:	300,000	150,000	150,000	--	--
Other Federal:	--	--	--	--	--
Total	$ 590,000	$ 347,507	$ 243,000	$ --	$ --

Description of Study

This is a study of potential irrigation and domestic water supply systems. Irrigation water would be provided for up to 50,000 acres of land, and domestic water would be provided to farms and communities in the project area. Water for the project would be taken from the Gregory County Hydroelectric Pumped Storage Facility on the Missouri River, of which construction by the U.S.Army Corps of Engineers has been authorized.

A Memorandum of Understanding between Reclamation and Gregory County Pumped Storage Site Water Corporation has been entered into for completing an appraisal report on lands in the project area suitable for irrigation. An evaluation of the potential irrigation development and systems to meet municipal and irrigation and rural water supply needs in the project area from the hydroelectric pump storage facilities will be prepared.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project		State
Great Plains	High Mountain Aquifer Study		Colorado
Initiation	**Completion**	**Percentage Cost Sharing**	**Type of Study**
FY 1986	FY 1990	39	Special Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 425,570	$ 423,570	$ 2,000	$ --	$ --
Non-Federal:	273,483	270,483	3,000	--	--
Other Federal:	--	--	--	--	--
Total	$ 699,053	$ 694,053	$ 5,000	$ --	$ --

Description of Study

The primary objective of this investigation is to determine the viability of using the glacial aquifers in the high mountain valleys of Colorado as storage reservoirs. The glacial aquifers offer a unique opportunity to combine natural and artificial techniques for the development of low cost water storage. This resource has experienced little to no development, and has the potential to provide a limited water supply for M&I (municipal and industrial), irrigation, streamflow and maintenance of water quality enhancement, and other uses. This investigation will require 4-1/2 years and focus primarily on testing the concept of utilizing the mountain aquifers as ground-water reservoirs.

The Bureau and the CONY Company, Inc., a private entity, signed a contract to cost share in this investigation. This study was terminated late in 1989 when the CONY Company, Inc. could not demonstrate any ability to continue to provide funds for their share of the study costs.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region Pacific Northwest	Project Idaho River Systems Management		State Idaho
Initiation FY 1991	Completion FY 1994	Percentage Cost Sharing 50	Type of Study Special Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 525,000	$ --	$ --	$ 75,000	$ 450,000
Non-Federal:	525,000	--	--	75,000	450,000
Other Federal:	--	--	--	--	--
Total	$1,050,000	$ --	$ --	$ 150,000	$ 900,000

Description of Study

This is a special study in which Reclamation will cooperate with the Idaho Department of Water Resources in addressing comprehensive basin water plans. Study emphasis will be in the areas of water-related problems and needs, resource capabilities, relationships between established water uses and new proposals, and to identify future resource management potential. The study encompasses key river basins in Idaho with special emphasis on central and southern Idaho. Reclamation will participate in basins or subbasins where its management and operational obligations are most apparent and where plan formulation and evaluation experience is beneficial.

In recent years competition between instream and consumptive water use interests has greatly increased and traditional uses and related operations are open to question and justification. Reclamation, through its stewardship responsibility for operating projects has primary responsibility in river and reservoir operation activities, water supply allocations, and management of multiple purpose facilities in several areas of critical interest.

Reclamation would participate in this cooperative effort to formulate, adopt, and implement comprehensive plans for conservation, development, management, and use of water within the state's river basins. The State of Idaho, through the Department of Water Resources will fund the activity at a level at least equal to Federal costs. Program priorities of system optimization and joint use would be advanced by this study as would Federal/non-Federal cooperation in efficient and effective management of resources.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region Lower Colorado	Project Indian Wells Valley Water Management Study		State California
Initiation FY 1989	Completion FY 1992	Percentage Cost Sharing 50	Type of Study Special Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 525,000	$ 49,987	$ 178,000	$ 175,000	$ 122,013
Non-Federal:	525,000	--	173,000	175,000	177,000
Other Federal:	--	--	--	--	--
Total	$ 1,050,000	$ 49,987	$ 351,000	$ 350,000	$ 299,013

Description of Study

The area of this investigation is the Indian Wells Valley in Inyo, Kern and San Bernardino Counties, California. The ground-water table in the area has been dropping as demand exceeds the natural recharge. In the community of Ridgecrest, the water table has dropped 65 feet from 1921 to 1980, 30 feet of which occurred between 1965 and 1980. Poor quality ground water in surrounding areas may migrate into the production zone as the water table declines. Initial development in the valley began with the establishment of the Naval Weapons Center at China Lake. The welfare of the community and the continued mission of the Center is dependent on an adequate water supply and its proper management. The current population of the valley is approximately 45,000 and has been growing by 10 percent per year.

This basinwide study includes optimization of water procurement and distribution systems, consideration of agricultural water use, and the potential for agricultural reuse of wastewater treatment plant effluent. The U.S. Geological Survey has been collecting data and has modelled the aquifer system in the valley. This information may help in estimating ground-water reserves and in measuring aquifer response to changes in pumping patterns. Forecasted demand for water supply would be provided by the current water users. Other sources of information include studies done by the Naval Weapons Center and consultants hired by local entities.

The Federal government has responsibility to secure a water supply necessary to support the Naval Weapons Center and associated personnel. Since the Federal government instigated development in the valley, evaluation from a Federal perspective may be in the best interest of the Federal government.

Local entities interested in water issues will fund 50 percent of the investigation.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project		State
Interregional	Investigation of Existing Projects		Various
Initiation	Completion	Percentage Cost Sharing	Type of Study
Ongoing	Ongoing	7	Special Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 1,023,187	$ --	$ 633,187	$ 390,000	$ --
Non-Federal:	85,000	--	85,000	--	--
Other Federal:	--	--	--	--	--
Total	$ 1,108,187	$ --	$ 718,187	$ 390,000	$ --

Description of Study

Reclamation, working closely with the water users and other entities, will survey existing water resource projects to determine the viability for two types of improvements.

(1) Remedial action to modify, replace or repair features on older projects, thereby conserving water for expanded use. Many of the developments have been in operation since early in the history of the Reclamation and improved technology has developed that permits more efficient operation that was not available when the projects were built.

(2) Possible operational adjustments of existing projects to increase benefits and purposes. Often the character of a project has changed over the years from agricultural to residential creating a demand for municipal and industrial water and a decreasing need for irrigation. Also, the importance of other purposes such as hydropower, flood control, fish and wildlife, and recreation, may have changed since a particular project was formulated and could now be provided or enhanced through feature modification and/or changed operations. Conserved water might also be used outside the project area.

Funds will be utilized for initial investigations and exploring viable improvements on existing projects.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project	State
Pacific Northwest	Josephine County Water Management Improvement Study	Oregon

Initiation	Completion	Percentage Cost sharing	Type of Study
FY 1989	FY 1992	50	Project Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 670,000	$ 109,523	$ 301,000	$ 200,000	$ 59,477
Non-Federal:	670,000	240,000	200,000	200,000	30,000
Other Federal:	--	--	--	--	--
Total	$ 1,340,000	$ 349,523	$ 501,000	$ 400,000	$ 89,477

Description of Study

The study area is located along the Rogue River in southwestern Oregon. The study is considering opportunities to resolve conflicting water issues in Josephine County (and a small portion of Jackson County) associated with the multipurpose uses of the Grants Pass Irrigation District facilities. The irrigation district's facilities provide benefits to fish and wildlife, irrigation, municipal and industrial use, and ground-water recharge. Continued operation of the district has been placed at risk by a reduced water diversion right, an aging system, and changing priorities in water use. Failure to take action could jeopardize benefits provided by district water service. Resolution of anadromous fish passage problems at Savage Rapids Dam, the district's major diversion structure, is also needed.

The study will analyze the interrelationship between irrigation diversions and ground-water recharge, consider the area's multiple water needs, identify structural and nonstructural opportunities for improvement in cooperation with the irrigation district and others, and help develop information for incorporation into the county's water plan.

City, county, State, and irrigation district officials support a coordinated Federal/local resolution of their problems. The Oregon Water Resources Department, Oregon Department of Fish and Wildlife and Federal fishery agencies support a resolution to the dam passage problem. Study partners include Oregon Department of Water Resources, Josephine County, City of Grants Pass, and Grants Pass Irrigation District.

Program priorities of optimization of the efficiency of existing systems, conservation, and environmental enhancement would be advanced by the study.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project		Study
Great Plains	Kansas River Basin Water Management Study		Kansas
Initiation	**Completion**	**Percentage Cost Sharing**	**Type of Study**
FY 1986	FY 1990	51	Special Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 510,943	$ 475,943	$ 35,000	$ --	$ --
Non-Federal:	540,000	540,000	--	--	--
Other Federal:	--	--	--	--	--
Total	$ 1,050,943	$ 1,015,943	$ 35,000	$ --	$ --

Description of Study

The mainstem Kansas River Basin is located in Northeast Kansas and flows in an eastward direction through Manhattan, Topeka, and Kansas City. The primary tributaries are the Blue, Republican, Solomon, Saline, Smoky Hill, and Delaware Rivers.

As the municipal and industrial needs in the Kansas River Basin increase, additional water will be required. One method of generating additional supplies is to more efficiently use the existing water within the basin. A reservoir management scheme will be developed for the principal reservoirs in the Kansas River Basin. Operational river models and forecasting systems will be developed for use by the State to operate the river basin as a system, rather than operating reservoirs individually. The major reservoirs and lakes, which will be considered in the basin operation, include Perry, Clinton, Tuttle Creek, Milford, Kanopolis, Wilson, Waconda, and Harlan County.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region Great Plains	Project Loup River Basin		State Nebraska
Initiation FY 1986	Completion FY 1990	Percentage Cost Sharing 68	Type of Study Special Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 320,314	$ 295,314	$ 25,000	$ --	$ --
Non-Federal:	642,000	642,000	--	--	--
Other Federal:	--	--	--	--	--
Total	$ 962,314	$ 937,314	$ 25,000	$ --	$ --

Description of Study

The Loup River Basin study area is in Central Nebraska. A recent Bureau study projects an inadequate water supply for a potential project in the basin. Recent data from area studies indicate the area is more complex geologically and hydrologically than previous studies indicated. The data requirements will have to be more extensive than planned, or the level of study detail will have to be lowered.

The State has expressed a strong interest in cooperating with the Bureau in a basin study in conjunction with their ongoing Sandhills Study. The Lower Loup Natural Resources District (LLNRD) is cooperating with the State in the Sandhills Study and has also expressed a strong interest in cooperating in a basin study. The eight existing irrigation and reclamation districts in the basin have requested that the LLNRD initiate reconnaissance studies to locate possible reservoir sites and estimate costs of construction. Several districts have individually requested a management study of the basin's water resources.

A Memorandum of Understanding was executed on July 6, 1987, between the Bureau of Reclamation, Nebraska Natural Resources Commission, and the Cedar Valley Reclamation District for a 5 year comprehensive investigation of the Loup River Basin.

Compilation of the land and water resources information in the Loup River Basin has been initiated.

There is also some local opposition to any proposed project in the Cedar River Basin. These individuals are likely to oppose a basin study on the premise it could lead to a development program in the Cedar River Basin.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region Great Plains	Project Lower Colorado River Basin Total Water Management Study		State Texas
Initiation FY 1989	Completion FY 1992	Percentage Cost Sharing 50	Type of Study Special Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 650,000	$ 19,630	$ 197,000	$ 200,000	$ 233,370
Non-Federal:	650,000	100,000	150,000	200,000	200,000
Other Federal:	--	--	--	--	--
Total	$ 1,300,000	$ 119,630	$ 347,000	$ 400,000	$ 433,370

Description of Study

The study area is in south-central Texas within the Lower Colorado River Basin from Lake Buchanan downstream to the Gulf of Mexico. Population growth and industrial expansion are anticipated to continue in the lower basin resulting in increasing demand on existing water supplies and need for new sources of municipal and industrial water and water-oriented activities. Water supply activities need to be integrated into a total water management plan for the basin.

There is a need to recognize and establish on a regional systematic basis, the relationship of existing and proposed water supplies, best use of water from a quality and quantity standpoint, timing of the various sources for bringing supplies on-line, conservation and management improvement potential, and identification of the most efficient use of water. There is potential for water conservation and management improvement efforts within the basin, including increased efficiencies in rice irrigation.

This study is supported by the Texas Water Development Board and the Lower Colorado River Authority and in-kind services will be provided by both agencies. Other concerned entities will participate to the extent of their capability.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project	State
Pacific Northwest	Minidoka, North Side Pumping Division Drainwater Management Study	Idaho

Initiation	Completion	Percentage Cost Sharing	Type of Study
FY 1991	FY 1993	50	Project Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 350,000	$ --	$ --	$ 80,000	$ 270,000
Non-Federal:	350,000	--	50,000	50,000	250,000
Other Federal:	--	--	--	--	--
Total	$ 700,000	$ --	$ 50,000	$ 130,000	$ 520,000

Description of Study

This study will address alternatives to the present practice of disposing of irrigation return flows through ground-water injection wells. The North Side Pumping Division of the Minidoka Project was authorized for construction by Congress in 1950. Construction was completed by Reclamation in 1959, and operation of the division was turned over to the A&B Irrigation District in 1966. Most irrigation return flows from Unit B, the 62,000-acre ground-water unit, are disposed of through injection wells which discharge drainwater directly into the Snake Plain aquifer. Flood flows also enter drains and become part of the injected water. The area lacks natural drainage courses to the Snake River.

Drainwater and storm water entering project injection wells raise ground-water quality concerns. Because of the potential for ground-water quality problems and the potential closure of some or all of the wells, an alternative to the present operation and method of disposing of the drainwater is needed. Solutions could include providing the district with pressure water service to encourage conversion to sprinkler application, management and operational changes to improve drainwater quality, drainwater reuse to reduce volumes of injected water, and construction of drains to divert wastewater to ponding areas or the Snake River.

Non-Federal cost sharing will be associated with activities of the Idaho Department of Health and Welfare and the Idaho Department of Water Resources in development of State ground-water activities including development of management strategies and regulations. A&B Irrigation District will provide significant services and funding for this study effort. Program priorities of water quality and environmental restoration/enhancement and ground-water management would be advanced by this study.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project	State
Interregional	Minor Work in Connection with Completed Project Investigations	Various

Initiation	Completion	Percentage Cost Sharing	Type of Study
ongoing	ongoing	15	Special Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 993,620	$ --	$ 472,620	$ 521,000	$ --
Non-Federal:	175,000	--	--	175,000	--
Other Federal:	--	--	--	--	--
Total	$ 1,168,620	$ --	$ 472,620	$ 696,000	$ --

Description of Study

After project studies have been completed, reports must be submitted to the State and other Federal agencies for review prior to their submissions to the Congress for authorization.

During this review process and during congressional consideration of the projects, it will be necessary to perform additional work on some of those investigations. Reformulation or reevaluation of plans is required for some proposals to reflect changes in planning criteria. It is not possible, however, to predict the amount of additional work required.

Furthermore, it occassionally is necessary to submit the reports or special drafts of reports to the local beneficiaries for their feedback prior to formal processing of the report to the Congress. The review sometimes necessitates additional work to incorporate local observations which cannot be foreseen and budgeted separately. In addition, there are a number of project investigations essentially completed on which work needs to be accomplished so that respective reports will provide plans consistent with changing priorities as well as new evaluation criteria.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project	State
Upper Colorado	New Mexico Regional Water Resources Study	New Mexico

Initiation	Completion	Percentage Cost Sharing	Type of Study
FY 1991	FY 1993	50	Special Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 600,000	$ --	$ --	$ 200,000	$ 400,000
Non-Federal:	600,000	--	--	250,000	350,000
Other Federal:	--	--	--	--	--
Total	$ 1,200,000	$ --	$ --	$ 450,000	$ 750,000

Description of Study

The New Mexico Regional Water Resources Study encompasses eight of the hydrologic regions within the State of New Mexico. The 1976 report, "New Mexico Water Resources Assessment for Planning Purposes" was prepared by the State of New Mexico and the Bureau of Reclamation in cooperation with other Federal and State agencies. The report is out of print and the data and analyses need updating.

This investigation would be directed toward updating the 1976 assessment. Principal elements will include population and employment projections, present water uses and projections, determination of probable surface and groundwater shortages, feasibility of alleviating shortages, supply augmentation, management improvement potential, and identification of the most efficient use of water. This information is needed by water resource managers in making decisions on present and future water requirements and needs.

This study is supported by the State of New Mexico, the New Mexico Interstate Stream Commission, and the New Mexico Water Resources Research Institute. The State of New Mexico will cost share in the study.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project	State
Pacific Northwest	Northern Douglas County Cooperative Water Resources Study	Oregon

Initiation	Completion	Percentage Cost Sharing	Type of Study
FY 1986	FY 1991	50	Project Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 1,179,209	$ 770,209	$ 359,000	$ 50,000	$ --
Non-Federal:	1,179,000	912,000	220,000	47,000	--
Other Federal:	--	--	--	--	--
Total	$ 2,358,209	$ 1,682,209	$ 579,000	$ 97,000	$ --

Description of Study

The study area is located in the Elk Creek drainage basin of the Umpqua River in Douglas County, Oregon. This study, which is being done jointly by Douglas County and the Bureau of Reclamation, is necessary to evaluate the need for orderly, multipurpose water resources development in the Elk Creek drainage of the Umpqua River basin. Water management and development plans resulting from the study could involve irrigation and municipal and industrial water supplies, flood control, hydropower, recreation, and enhancement of anadromous and resident fisheries, wetlands, and wildlife. Douglas County began data collection in FY 1984 and Reclamation involvement began in FY 1986. Multipurpose water needs have been defined. New water storage facilities may be necessary to meet water resources needs. Fiscal year 1990 funds will be used to complete a planning report on the Elk Creek basin.

The total estimated cost decreased $986,253 because the Calapooya Creek Basin portion of the study has been discontinued due to lack of potential for a Federal project.

Douglas County supports this study with in-kind services. The program priority of Federal/non-Federal cooperation in enhancing efficient and effective management of existing water resources will be advanced by the study.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project	State
Mid-Pacific	Northern Nevada Water Augmentation Program	Nevada

Initiation	Completion	Percentage Cost Sharing	Type of Study
FY 1989	FY 1992	50	Project Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 500,000	$ 40,481	$ 221,519	$ 180,000	$ 58,000
Non-Federal:	500,000	80,000	215,000	180,000	25,000
Other Federal:	--	--	--	--	--
Total	$ 1,000,000	$ 120,481	$ 436,519	$ 360,000	$ 83,000

Description of Study

The study area encompasses Northern Nevada in and adjacent to the Truckee, Carson, Walker, and Humboldt River Basins.

The purpose of this investigation is to examine various potential means whereby the water supplies available to Northern Nevada might be increased. Methods to be considered will include the following possibilities singly or in combination: Conjunctive use of surface and groundwater supplies; purchase of water rights; weather modification; development and use of the carbonate aquifer; wastewater reclamation; water conservation; ground water recharge, modification of river operations; vegetation management; and treatment of geothermal and brackish water.

Northern Nevada, particularly in the Reno-Sparks and Carson City metropolitan area are continuing to develop and grow in an area of limited water supplies. Opportunities for development of new water supplies for the future are restricted and it is imperative that optimal use be made of the supplies available to the area.

A Memorandum of Agreement was executed on December 5, 1989 with the State of Nevada stating that they will be responsible for at least one-half of the work to be done.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project		State
Great Plains	Northwest Oklahoma Water Supply Study		Oklahoma
Initiation	**Completion**	**Percentage Cost Sharing**	**Type of study**
FY 1985	FY 1990	4	Project Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 1,134,401	$ 976,401	$ 158,000	$ --	$ --
Non-Federal:	50,000	50,000	--	--	--
Other Federal:	--	--	--	--	--
Total	$ 1,184,401	$ 1,026,401	$ 158,000	$ --	$ --

Description of Study

The study area encompasses the eight northwestern Oklahoma counties of Cimarron, Texas, Beaver, Harper, Wood Ellis, Woodward, and Dewey.

According to the 1980 Oklahoma State Water Plan, all of the counties in the study area are facing water shortage problems and comprise one of the most water-deficient areas of the State. Declining ground water supply, which is virtually the only reliable source of water, poses a critical problem and threatens encroachment of fresh water aquifers by saline water. Recharge from the 18 inches of average annual precipitation cannot equal the present rate of withdrawal pumping. The major streams traversing or adjacent to the study area present water supply problems, primarily salinity which exceeds recommended public health standards for municipal and domestic use. Both surface and ground water supplies are adversely affected by periodic droughts. Limited water supplies preclude additional irrigation development.

The study will evaluate alternative ways and means of solving these problems and satisfying the needs. All potential sources of water will be considered, both within and outside the study area, and available water supplies of poor quality that might be made usable by special treatment.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region Mid-Pacific	Project Offstream Storage		State California
Initiation FY 1986	Completion FY 1990	Percentage Cost Sharing 51	Type of Study Project Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 1,058,517	$ 907,313	$ 151,204	$ --	$ --
Non-Federal:	1,110,000	1,110,000	--	--	--
Other Federal:	--	--	--	--	--
Total	$ 2,168,517	$ 2,017,313	$ 151,204	$ --	$ --

Description of Study

Numerous sites in the San Joaquin Valley have been identified as potential offstream reservoir sites and are being studied under four units as part of the Offstream Storage Investigation. These include the Contra Costa Unit, Los Banos Grandes Unit, East Side Unit, and the Wetland Habitat Unit. Reservoir sites and their approximate potential storage capacity include: Los Vaqueros (1,100,000 acre-feet), Los Banos Grandes (2,200,000 acre-feet) on the west side of the valley, Wilcox (800,000 acre-feet) and Hungry Hollow (800,000 acre-feet) on the east side of the valley. In addition, wetland habitat can be used for offstream storage by flooding the land in the fall and capturing the return flows from the site in the spring.

One potential use for additional project yield is to relieve the groundwater overdraft in the San Joaquin Valley. An additional use could be to help improve Delta fisheries by altering the pumping regime at the Tracy Pumping Plant and making deliveries out of offstream storage reservoirs such as at Los Vaqueros. Offstream storage could also be combined with existing facilities to increase the delivery capability of the CVP south of the Delta. With offstream storage, surplus water could be pumped from the Sacramento River or the Delta during times when the system is operating at less than maximum capacity, stored until needed, and then delivered during times when canal capacity is available without requiring construction of additional conveyance facilities. Plans for new conveyance into the San Joaquin Valley are being formulated under the San Joaquin Valley Conveyance Study and Kellogg Unit Reformulation Study, which would be integrated with future offstream storage reservoirs to provide additional supplies and delivery capability. Additionally, offstream storage may be required to implement the new California State Water Resources Control Board Bay-Delta standards being formulated.

The total estimated cost increased and the completion date was extended due to additional work required for other alternatives, and to accommodate the non-Federal partner's schedule on all four units.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region Mid-Pacific	Project Refuge Water Supplies		State California
Initiation FY 1986	Completion FY 1990	Percentage Cost Sharing 37	Type of Study Project Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 506,171	$ 493,618	$ 12,553	$ --	$ --
Non-Federal:	300,000	300,000	--	--	--
Other Federal:	--	--	--	--	--
Total	$ 806,171	$ 793,618	$ 12,553	$ --	$ --

Description of Study

The study area encompasses the California Central Valley hydrologic basin.

The waterfowl migrating through or wintering in California comprise over 60 percent of the Pacific Flyway population and 18 percent of the entire continental wintering waterfowl population. National Wildlife Refuges and State Wildlife Management Areas in the Central Valley of California provide approximately one-third of the California critical wetland habitat for waterfowl. These wildlife areas, together with privately managed wetlands, have relied on surplus surface water, groundwater, and agricultural return water. As the demands for freshwater increase in California, it is anticipated that the quantity and quality of water available to the wildlife areas will diminish, especially during below normal rainfall years. In the San Joaquin Valley the problem has become serious due to the lowering of the groundwater table and the deteriorating quality of agricultural return waters. Without a commitment to provide the water needed to maintain existing Central Valley waterfowl habitat, waterfowl numbers could be significantly reduced in the next decade.

This study is investigating the needs and means to deliver dependable water supplies to 10 national wildlife refuges, 4 State wildlife management areas, and Grasslands Resource Conservation District. To facilitate the optimal management of these areas for the preservation of migratory birds of the Pacific Flyway, the Fish and Wildlife Service (FWS) and State Department of Fish and Game desire that current firm water deliveries be increased from 122,000 acre-feet/year to 526,000 acre-feet/year using CVP energy for pumping where practical. The study will identify water needs, define Bureau, FWS, State and District responsbilities in meeting those needs, identify alternatives for water and energy source supply and conveyance to those individual sites, and provide recommended plans for water delivery to each area. Final plan selection and preparation of a draft planning report will be dependent upon water contracting schedules and/or Congressional directives for Refuge Water Supplies.

Support for this study has been demonstrated by the Fish and Wildlife Service, California Departments of Fish and Game and Water Resources and numerous private organizations such as the California Waterfowl Association.

The U.S. Fish and Wildlife Service and the State Department of Fish and Game will be involved in providing expertise on waterfowl habitat improvement and study impacts.

The State of California has provided in-kind services valued at $240,000. The California Waterfowl Association provided a $30,000 cash contribution in fiscal year 1987. The State Department of Fish and Game also provided a $30,000 cash contribution in fiscal year 1989.

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region Mid-Pacific	Project San Joaquin River Basin Resource Management Initiative		State California
Initiation FY 1991	Completion FY 1995	Percentage Cost Sharing 50	Type of Study Project Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 1,800,000	$ --	$ --	$ 200,000	$ 1,600,000
Non-Federal:	2,500,000	--	--	200,000	2,300,000
Other Federal:	--	--	--	--	--
Total	$ 4,300,000 1/	$ --	$ --	$ 400,000	$ 3,900,000

Description of Study

The Study location includes the entire San Joaquin River and Tulare Lake hydrologic basins of California. Major rivers in the study area are the Stanislaus, Toulomne, Merced, San Joaquin, Kings, Kaweah, Tule, and Kern. Numerous public and private water systems manage in excess of 14 million acre-feet in the basin.

The basic objective of the study is to improve the water-related environment of the San Joaquin River Basin with particular emphasis on fisheries, wetlands, and water quality, while continuing the delivery of water supplies for M&I and agricultural purposes. Improvement efforts to be examined include conjuctive use of groundwater and surface water, rehabilitation of conveyance facilities, coordinated operation of reservoirs, offstream storage in wetland habitat, fisheries inprovements, and development of water exchanges and modifications in points of diversion. The Initiative, which includes an EIS, will also examine price and conservation aspects of project operations to promote efficient and environmentally sound resource use.

The study would be funded with 50 percent cost sharing from the California Departments of Fish and Game and Water Resources, Merced Irrigation District, Modesto Irrigation District, Turlock Irrigation District, and possibly other irrigation districts and water agencies within the valley.

1/ Preliminary work being performed in FY 1990 under Environmental and Interagency Coordination activities indicate the total estimated program requirements for this initiative is $5 million which will be 50 percent cost shared. Of the Federal share, $1.8 million will be funded through the General Investigations appropriation, while the remaining $700,000 will be funded from the O&M appropriation. In FY 1991 the O&M appropriation includes $300,000 for environmental compliance activities involving the renewal of water service contracts for the Friant Unit of the Central Valley Project.

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Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project	State
Mid-Pacific	San Joaquin Valley Conveyance	California

Initiation	Completion	Percentage Cost Sharing	Type of Study
FY 1985	FY 1990	43	Project Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 1,468,325	$ 1,460,761	$ 7,564	$ --	$ --
Non-Federal:	1,100,000	1,100,000	--	--	--
Other Federal:	--	--	--	--	--
Total	$ 2,568,325	$ 2,560,761	$ 7,564	$ _	$ --

Description of Study

The study area includes the San Joaquin River and Tulare Lake hydrologic basins encompassing parts of San Joaquin, Stanislaus, Merced, Madera, Fresno, Tulare, Kings, and Kern Counties.

The purpose of the study is to formulate a plan by which additional water supplies could be imported to the San Joaquin Valley to assure that current levels of agricultural production can be maintained in the future.

There is a projected need in the study area for a supplemental water supply of some 2 million acre-feet to replace supplies obtained from ground-water overdraft by the year 2010. The present estimate of overdraft is 1 million acre-feet. Corollary problems associated with the overdraft are increasing groundwater pumping costs, water quality deterioration, and land subsidence. Other water and related problems in the study area are drainage, erosion and sedimentation, flooding, and fish and wildlife deterioration.

The California Department of Water Resources (DWR) and the Mid-Valley Water authority are cost sharing in the study and DWR is contributing assistance through in-kind services with various data and analyses.

The study is being concluded pending a determination of an available water supply for the service area. Activities are being coordinated with the Central Valley Project Water Contracting Program Environmental Impact Statements.

The total estimated cost has increased $116,513 and the completion date extended one year due to the complexity of identifying an acceptable plan requiring additional analysis.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project	State
Lower Colorado	Santa Ana Watershed Management Study (formerly San Bernardino Valley Water Mgmnt. Project)	California

Initiation	Completion	Percentage Cost Sharing	Type of Study
FY 1987	FY 1991	50	Special Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 500,000	$ 264,000	$ 137,000	$ 99,000	$ --
Non-Federal:	500,000	100,000	207,000	193,000	--
Other Federal:	--	--	--	--	--
Total	$ 1,000,000	$ 364,000	$ 344,000	$ 292,000	$ --

Description of Study

The project study area is in San Bernardino, Riverside, and Orange Counties, California. The name of the study has been changed to more accurately reflect the study area of the San Bernardino basin as well as other basins within the Santa Ana Watershed.

The objective of the study is to develop a long-range plan for the management of the water resources of the Santa Ana River watershed. The derived management plan will be designed to maximize yields and water quality, at the same time ensuring equity among users.

The program would focus on more efficient use of water in the basin and would provide increased opportunity to capture natural runoff for local use, alleviate growing ground-water degradation problems, and integrate municipal wastewater into the water supply. In addition to this, the high water table problem at San Bernardino would be included in the overall management program provisions.

Local efforts dealing with water management are fragmented and the Santa Ana Watershed Project Authority (SAWPA) believes that a solution depends on the Bureau of Reclamation which can exercise a credible coordination role in addition to providing the expertise to develop a sound project plan. A cost sharing agreement with SAWPA was executed in September 1987.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project		Study
Great Plains	Seminoe Dam Modification		Wyoming
Initiation	Completion	Percentage Cost Sharing	Type of Study
FY 1986	FY 1990	57	Special Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 430,963	$ 331,963	$ 99,000	$ --	$ --
Non-Federal:	578,000	478,000	100,000	--	--
Other Federal:	--	--	--	--	--
Total	$ 1,008,963	$ 809,963	$ 199,000	$ --	$ --

Description of Study

Reclamation is investigating the feasibility of enlarging Seminoe Dam in central Wyoming to provide additional storage, thereby expanding the usable portion of the water supply. The original plan was to complete a Regional Director's Planning Report/Draft Environmental Statement (RD's PR/DES) for the Seminoe Dam Modifications Study. At a meeting on June 30, 1988, with the Director of the Wyoming Water Development Commission, it was decided to rescope the study from an RD's PR/DES to a Special Report. Three operational alternatives, based on different institutional and environmental constraints, will be evaluated and displayed in the Special Report.

A discussion of potential benefits will be presented in the Report as well as a narrative addressing environmental impacts, etc. that would require further consideration before futher action could be taken regarding any Federal implementation.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region Upper Colorado	Project Sevier River Water Management Study		State Utah
Initiation FY 1989	Completion FY 1992	Percentage Cost Sharing 51	Type of Study Special Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 463,508	$ 115,508	$ 102,000	$ 120,000	$ 126,000
Non-Federal:	477,000	117,000	120,000	120,000	120,000
Other Federal:	--	--	--	--	--
Total	$ 940,508	$ 232,508	$ 222,000	$ 240,000	$ 246,000

Description of Study

The study is located in the Sevier River Basin in Utah. The Wasatch Front Total Water Management Study identified a need for more timely and accurate water resource data in the Sevier River Basin. Because the Sevier River Basin is subject to both unusually high and low flow conditions, a real-time data collection and processing system would greatly improve decision-making and enhance water use management.

The Bureau plans to install a system to accelerate data collection and the dissemination of data to water managers; develop a system of computer graphics to facilitate data interpretation; and evaluate and/or develop real-time models to assist decision-makers with water accounting and operation. The operating models would be useful for water deliveries, minimizing flood damage, protecting aquatic habitat, improving water quality, and maximizing power generation, etc.

Because of the Sevier River Basin's problems with flooding and the problems the basin has historically had with droughts, the proposed project is receiving strong local support. Letters of support from the Sevier River Water Users Association and from the river commissioner of the lower Sevier River have been received. The State of Utah (Divisions of Water Resources and Water Rights), Brigham Young University, and Utah State University strongly support the project and are cost sharing in it.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region Mid-Pacific	Project Small Project Integration with CVP		State California
Initiation FY 1991	Completion FY 1993	Percentage Cost Sharing 50	Type of Study Project Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 190,000	$ --	$ --	$ 60,000	$ 130,000
Non-Federal:	190,000	--	--	60,000	130,000
Other Federal:	--	--	--	--	--
Total	$ 380,000	$ --	$ --	$ 120,000	$ 260,000

Description of Study

The study area would be centered on the Solano Project service area in Solano County. However, because the objective of the study would be to integrate the Solano and Central Valley Projects, the study area would also include the entire Central Valley.

There are several small projects that are located on tributaries to the Sacramento River. These include the Solano Project on Putah Creek and the Orland Project on Stony Creek. Each year's supply is determined by the runoff in the individual basin. By integrating the supplies with the rest of the Central Valley Project (CVP) more flexibility would be provided to manage the water which in turn could result in a larger total supply for all of the water users.

Solano County, largely served by the Solano Project, is one of the fastest growing areas of California and has a growing need for additional M&I water supplies. There is the potential to integrate the operation of Lake Berryessa with the CVP through the State Water Project North Bay Aqueduct and for the extension of the Tehama-Colusa Canal. In addition, there is an opportunity to use these surface supplies with an already developed groundwater basin which underlies the county.

The study would be funded with 50 percent cost sharing from the Central Valley water users, the Solano water users, and the Solano Water Authority.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region Great Plains	Project South Platte River Operations Study	State Colorado

Initiation FY 1987	Completion FY 1990	Percentage Cost Sharing 50	Type of Study Special Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 123,541	$ 71,541	$ 52,000	$ --	$ --
Non-Federal:	115,000	115,000	--	--	--
Other Federal:	--	--	--	--	--
Total	$ 238,541	$ 186,541	$ 52,000	$ --	$ --

Description of Study

The South Platte River Operations Management Study area includes the entire South Platte River Basin in Colorado. This study is designed to review possibilities for increasing watershed yield through improved water management. Consideration is being given to the physical, economic, social, and political aspects of water management.

Additional water is needed or better utilization of the existing supply is required to support the Denver metropolitan growth. The State of Colorado and numerous water users along the South Platte River are supportive of an investigation to increase water availability in the basin.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region Interregional	Project Technical Assistance to States		State Various
Initiation ongoing	Completion ongoing	Percentage Cost Sharing 3	Type of Study Special Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 2,943,000	$ --	$ 1,593,000	$ 1,350,000	$ --
Non-Federal:	82,000	--	82,000	--	--
Other Federal:	--	--	--	--	--
Total	$ 3,025,000	$ --	$ 1,675,000	$ 1,350,000	$ --

Description of Study

This program is designed to provide Reclamation with a vehicle to assist States with data collection and analyses for management of water and related land resources. Calls for this type of assistance are very common. Through this program, Reclamation will provide its technical expertise to deal with water and related land management issues with which Reclamation has extensive experience and knowledge, to complement the data collection and analytical capabilities which the States themselves may have.

For example, the tasks may be simply to provide data which may not be readily available to the States. In other cases, Reclamation will help the States in sorting out the complex interrelationships of surface and groundwater, water quality assessment, various user demands, instream flow requirements, economic analysis and other factors whose evaluation can lead to the best use of available water resources. While these studies can be complex, they are intended only as support to States in their own work. Entire project investigations will not be performed for the States nor for State chartered agencies, such as irrigation districts under this program.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project	State
Pacific Northwest	Teton Dam Reappraisal	Idaho

Initiation	Completion	Percentage Cost Sharing	Type of Study
FY 1990	FY 1990	50	Special Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 148,000	$ --	$ 148,000	$ --	$ --
Non-Federal:	148,000	--	148,000	--	--
Other Federal:	--	--	--	--	--
Total	$ 296,000	$ --	$ 296,000	$ --	$ --

Description of Study

The Idaho State Legislature, in March 1989, petitioned Congress to authorize and appropriate funds to the Bureau of Reclamation to evaluate the feasibility of reconstructing Teton Dam. Congress included funds in Reclamation's fiscal year 1990 program to initiate an appraisal-level evaluation.

Congress authorized Teton Dam construction in 1964 (P.L. 88-583) for purposes of irrigation, power, recreation, fish and wildlife, and flood control. Construction was nearly complete when the dam failed in 1976. Post failure investigations concluded that a safe dam could be built at the site. A recent series of drought years led the Idaho Legislature to request an evaluation of the feasibility of rebuilding the dam since it is one of the few remaining storage sites in the State.

The engineering, economic, and environmental aspects of reconstructing Teton Dam are complex. An appraisal level evaluation is an appropriate prerequisite to a detailed feasibility study and would (1) review water supply availability, needs, prospective markets, (2) update preliminary dam reconstruction cost estimates, (3) estimate potential benefits, (4) overview public attitudes and areas of major environmental concern, and (5) identify major technical work requirements and policy issues should the project receive further consideration.

Funds made available for fiscal year 1990 would be used to accomplish the appraisal level work. Reclamation staff would work with local interests, State of Idaho water resources staff, and others to accomplish the reappraisal. Information available from preliminary project reviews done during the period 1981-1983 would be used along with more current information where available. Generation of new data and extensive field work are not anticipated. A report summarizing the reappraisal will be made available to the State of Idaho, local interests, and congressional offices as appropriate. If warranted, a feasibility study could be programmed for a later date.

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project	State
Denver office	Toxic Constituent Studies	Various

Initiation	Completion	Percentage Cost Sharing	Type of Study
FY 1990	Ongoing	0	Special Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimated FY 1991	Balance To Complete
Reclamation:	$ 1,164,000	$ --	$ 99,000	$ 265,000	$ 800,000
Non-Federal:	--	--	--	--	--
Other Federal:	--	--	--	--	--
TOTAL	$ 1,164,000	$ 0	$ 99,000	$ 265,000	$ 800,000

Description of Study

The purpose of this study is to (1) develop a more thorough understanding of trace element/toxic constituent mobilization and movement processes under an irrigation regime; (2) develop models to predict trace element/toxic constituent impacts on irrigation return flows and associated downstream and offsite environmental, economic, and social effects; and (3) evaluate land selection, soil treatment, and water application alternatives to minimize water quality impacts.

Reclamation's involvement in Trace Element/Toxic Constituent Studies is directly related to our experiences at Kesterson Reservoir, the Department of Interior Drainage Program, and resulting desire to avoid future water quality problems due to irrigation. The Garrison Diversion Unit Reformulation Act of 1986 made studies of potential hazards, arising as a result of irrigation, a legal requirement and part of the land classification and land certification process.

The funds will be used to: (1) develop a work plan for initial field and laboratory studies, (2) conduct field activities and laboratory studies, and (3) prepare a model development work plan.

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region Pacific Northwest	Project Upper Deschutes River Basin Water Conservation Project		State Oregon
Initiation FY 1990	Completion FY 1994	Percentage Cost Sharing 50	Type of Study Project Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 745,000	$ —	$ 79,000	$ 290,000	$ 376,000
Non-Federal:	745,000	—	80,000	290,000	375,000
Other Federal:		—	—	—	—
Total	$ 1,490,000	$ —	$ 159,000	$ 580,000	$ 751,000

Description of Study

The Deschutes River drains about 10,000 square miles between the Cascade Range and the Ochoco Mountains in central Oregon. The study will focus on water conservation potentials associated with two Reclamation storage projects, the Crooked River Project and the Deschutes Project, which provide about 124,000 acres of irrigation water service. Other authorized functions include flood control, fish and wildlife, and recreation. Present operation of the existing Federal storage system is keyed toward meeting the authorized irrigation function, but a significant portion of the available water is lost through high seepage in the irrigation canals. The potential markets for the conserved water include fishery, instream recreation, water quality, hydroelectric power, and supplemental irrigation.

The study will identify measures to improve water conveyance and on-farm irrigation efficiencies as well as opportunities to improve existing system operations. A demonstration project in partnership with one or more irrigation districts will be proposed and a strategy developed for institutional and financial implementation and evaluation of conservation technology. The State of Oregon hopes that this study will develop a model water conservation project with applicability to other irrigation areas.

This study is being performed as a cooperative effort between the Oregon Department of Water Resources and the Bureau of Reclamation. The study is supported by the Oregon Department of Fish and Wildlife, Deschutes County, local municipalities, public interest committees, and service groups. Irrigation districts are supportive of plans that would provide supplemental irrigation water and improve water management efficiencies. Program priorities of optimization of efficiency of existing systems will be advanced by the study as will Federal/non-Federal cooperation in efficient and effective management of water resources.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project		State
Upper Colorado	Upper Gunnison-Uncompahgre Basin Project		Colorado
Initiation	**Completion**	**Percentage Cost Sharing**	**Type of Study**
FY 1989	FY 1993	60	Project Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 920,000	$ 67,616	$ 226,000	$ 280,000	$ 346,384
Non-Federal:	1,360,000	160,000	300,000	420,000	480,000
Other Federal:	--	--	--	--	--
Total	$ 2,280,000	$ 227,616	$ 526,000	$ 700,000	$ 826,384

Description of Study

The Upper Gunnison-Uncompahgre Basin Project is located in central and west-central Colorado in the Gunnison and Arkansas River Basins. The purpose of investigations is to determine the most efficient use of Gunnison River Basin waters for its citizens and the citizens of the State of Colorado. The Gunnison River Basin has significant and valuable water resources with substantial storage held in trust by Reclamation in the Wayne N. Aspinall Unit reservoirs. A combining of east slope consumptive needs with the west slope environmental and recreational needs provides a unique opportunity for the State to distribute capital to achieve balanced economic development among historically competing interests.

This investigation was proposed by the Colorado Water Resources and Power Development Authority, the Upper Gunnison River Water Conservancy District, and the Colorado River Water Conservation District. Because Reclamation facilities play major water management roles within the basin, Reclamation would prepare the Planning Report/Environmental Impact Statement. The State of Colorado is cost-sharing in the investigation.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project	State
Pacific Northwest	Upper John Day Water Optimization Project	Oregon

Initiation	Completion	Percentage Cost Sharing	Type of Study
FY 1989	FY 1992	50	Project Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 710,584	$ 190,584	$ 217,000	$ 250,000	$ 53,000
Non-Federal:	710,000	436,000	135,000	100,000	39,000
Other Federal:	--	--	--	--	--
Total	$1,420,584	$ 626,584	$ 352,000	$ 350,000	$ 92,000

Description of Study

The John Day River Basin is in northcentral Oregon. The study is evaluating potential for conjunctive surface and ground-water use, including watershed retention and small storage facilities, to control runoff, reduce seasonal water shortages, and stabilize ground-water conditions in the basin. Although the total quantity of annual run-off in the basin is ample, watershed conditions have reduced the amount of natural streambank and aquifer recharge. As a result, the John Day River experiences high spring runoff followed by extremely low summer and fall flows. The flow extremes are much greater than in the past with some streams that formerly flowed year round becoming dry in the summer. Water supplies for irrigation have declined, natural recharge to ground-water aquifers has been reduced, and water quality conditions and instream flows for aquatic life are often poor. A particular concern is the effect on the John Day River salmon and steelhead fishery.

Project support includes the Oregon Water Resources Department, John Day Basin Council, and the Soil and Water Conservation Districts and several State and Federal agencies.

The total estimated cost increased $78,584 to gather and alalyze geologic data on a potential ground water recharge area identified in the early stages of the study.

The State of Oregon has accomplished the initial phase of the John Day optimization program by conducting a comprehensive overview of basin water issues. This effort involved a coordinated analysis by several state resource management and policy agencies, and an extensive public involvement program. This effort led to a direction for water management and development. The Reclamation study is assisting the John Day Basin Council and other agencies in defining specific elements of an optimization plan and developing a program for implementation.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region Lower Colorado	Project Upper San Pedro River Optimization Study		State Arizona
Initiation FY 1991	Completion FY 1994	Percentage Cost Sharing 50	Type of Study Special Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 450,000	$ --	$ --	$ 75,000	$ 375,000
Non-Federal:	450,000	--	--	75,000	375,000
Other Federal:	--	--	--	--	--
Total	$ 900,000	$ --	$ --	$ 150,000	$ 750,000

Description of Study

The project will study the water supplies in the upper San Pedro River basin in order to develop an area-wide water management plan. Except for a small amount of surface diversion from the San Pedro River in the St. David area and minor use of springs, water supplies in the upper San Pedro River basin come from the ground. Although cones of depression exist in areas of heavy pumping, there appears to be an adequate supply of water for current uses. However, there is concern that as demands increase in the future supply will become deficient.

Lack of data and information on the size and dynamics of the groundwater resource has caused concern about the ability of the resource to meet future needs. The local community sees a need to analyze existing resources and develop a plan for future management of those resources. A number of local entities have been collecting data independently and some work has been done on development of a groundwater model. Local entities have joined together in an Association, providing a forum for resolution of water issues and a forum for developing an area-wide management plan.

Reclamation involvement is warranted because several issues involve Federal interest. Fort Huachuca is a major presence and significant water user in the basin. Settlement of Gila River Indian water right claims may impact water supply in the basin. The Bureau of Land Management has an active interest in maintaining perennial flows in the river and continued viability of the riparian habitat along the river. Since the groundwater basin extends into Mexico, additional development of the groundwater resource may have international implications.

The investigation will be 50 percent cost shared by the Association.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region Pacific Northwest	Project Upper Snake River Basin Storage Optimization		State Idaho-Wyoming
Initiation FY 1987	Completion FY 1993	Percentage Cost Sharing 50	Type of Study Special Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 723,984	$ 274,726	$ 153,000	$ 125,000	$ 171,258
Non-Federal:	724,000	330,000	100,000	125,000	169,000
Other Federal:		--	--	--	--
Total	$ 1,447,984	$ 604,726	$ 253,000	$ 250,000	$ 340,258

Description of Study

This special investigation encompasses the upper Snake River basin in Idaho upstream to the headwaters in Wyoming. Reclamation's study is one element of a multiparty effort to consider an overall surface and ground water program for the basin.

The study is reviewing the historical use of Bureau of Reclamation storage reservoirs in the Upper Snake River Basin, the effect of hydrologic cycles on water use and storage capability, the originally intended uses of the storage when it was placed under contract, and opportunities for further optimization of the existing storage resource through modified reservoir system operation, use of the Upper Snake Water Bank, and other possibilities. Where authorities permit, acceptable programs to improve use of storage could be undertaken as the study proceeds. The study will also provide updated information on Snake River storage potentials including a review of cost and critical environmental issues.

The investigation's objectives are consistent with critical current State of Idaho concerns over irrigation, hydropower, and other water users; the current Snake River water right adjudication including Indian and reserved water right claims; water right priorities; and the availability of water to meet these existing and identified future water needs in the upper basin.

The total estimated cost increased $370,000, and the completion date extended one year, because of the requirement for Reclamation to continue to participate in fish and wildlife impact studies associated with Snake River operations mandated by Public Law 100-216 and because of accelerated involvement in Indian water rights settlements.

The Idaho Department of Water Resources and local water use entities are cost-sharing in study activities. The program priority of Federal/non-Federal cooperation in enhancing the efficient and effective management of existing water resources would be advanced by this study.

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project	State
Upper Colorado	Utah Area Water Demand Model	Utah

Initiation	Completion	Percentage Cost Sharing	Type of Study
FY 1990	FY 1993	65	Special Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 275,000	$ --	$ 49,000	$ 100,000	$ 126,000
Non-Federal:	500,000	--	150,000	175,000	175,000
Other Federal:	--	--	--	--	--
Total	$ 775,000	$ --	$ 199,000	$ 275,000	$ 301,000

Description of Study

The Utah Area Water Demand Model study encompasses an area in Utah defined as the more densely populated area along the western edge of Utah's Wasatch Mountains.

The study will develop an interactive computer model to be used by water managers and planners to forecast changing municipal and industrial water demands, to evaluate water conservation implementation strategies and to develop drought contingency plans. The model will be a critical element in developing long-term forecasts and prioritizing future water resource strategies involving system optimization and water conservation options and impacts. It will also assist in evaluating the short-term options necessary to better operate existing urban infrastructure.

The study is supported by the Utah Division of Water Resources, Salt Lake County Water Conservancy District, Salt Lake Metropolitan Water District, Central Utah Water Conservancy District, Weber Basin Water Conservancy District, and numerous communities.

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project		State
Pacific Northwest	Willamette River Basin Water Optimization Study		Oregon
Initiation	Completion	Percentage Cost Sharing	Type of Study
FY 1989	FY 1992	50	Project Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 591,603	$ 84,603	$ 244,000	$ 180,000	$ 83,000
Non-Federal:	591,603	200,000	218,000	100,000	73,603
Other Federal:	--	--	--	--	--
Total	$ 1,183,206	$ 284,603	$ 462,000	$ 280,000	$ 156,603

Description of Study

The Willamette River basin is located between the Coast Range and the Cascade Range in western Oregon, and contains two-thirds of the State's population.

Reclamation is cooperating with the Oregon Water Resources Department to review water uses and water management improvement opportunities in the basin. The Willamette River basin is the most complex of Oregon's river basins by virtue of its large population, existing storage network, and large number of competing functions. Since development of Federal water storage facilities in the basin, population increases and industrialization have altered the area's water demands. There is need to identify opportunities to meet current and projected water needs consistent with those changes. Multiagency studies will focus on alternative water uses for uncontracted Federal storage; potential changes in authority and allocation of water may be identified. Management plans, including conservation and optimization of water operations, would be developed for incorporation in State water resources strategy. Reclamation is working with the State to identify institutional and statuatory constraints associated with promoting optimal use of existing supplies. The Tualatin River, a tributary of the Willamette River is included in the study plan and an evaluation will be made of municipal and industrial water needs, water quality problems, and other concerns in this subbasin. Rural water supply needs involving Polk, Lincoln, and Yamhill Counties will be evaluated.

The total estimated cost increased $97,206 to review rural water supply needs of a multi-county area interested in a cooperative solution.

The State of Oregon, local governments and water purveyors will share the study costs and provide direction for study activities. The program priorities of optimization of the efficiency of existing system and Federal/non-Federal cooperation in enhancing effective management of water resources will be advanced by this study.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region Great Plains	Project Wind River Basin Study		State Wyoming
Initiation FY 1991	Completion FY 1994	Percentage Cost Sharing 50	Type of Study Project Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 425,000	$ --	$ --	$ 37,000	$ 388,000
Non-Federal:	425,000	--	--	37,000	388,000
Other Federal:	--	--	--	--	--
Total	$ 850,000	$ --	$ --	$ 74,000	$ 776,000

Description of Study

The study area is in the Wind River Basin located in west central Wyoming, southeast of Teton National Park in Fremont County, Wyoming.

In January 1977, the State of Wyoming filed a lawsuit against the United States and others to adjudicate all water rights in the Bighorn River Basin. The suit was directed at accomplishing three objectives: (1) to determine and decree Indian reserved rights; (2) to determine other Federal reserved rights; and (3) to decree all other State filed rights in the Basin. In 1984, Wyoming courts ruled the Indian tribes had the senior water rights in the Basin. The ruling was upheld by the United States Supreme Court in June 1989. This ruling impacts existing non-Indian irrigation because, except in high water years, there is not enough water available to satisfy reservation rights and other irrigator needs.

The State of Wyoming and the Shoshone and Arapahoe Tribes have recently signed an agreement that will provide the Tribes $5.6 million in exchange for not exercising their water rights in 1989. Both the State and the Tribes are interested in cost sharing a study with Reclamation to resolve the water issues in the Wind River. A basin hydrology model would be required to make a proper evaluation of present and future water needs. The study would be 50 percent cost shared with the State of Wyoming.

Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

Region	Project		State
Pacific Northwest	Yakima River Basin Water Enhancement Project		Washington
Initiation	**Completion**	**Percentage Cost Sharing**	**Type of Study**
FY 1981	FY 1992	6	Project Investigation

Summarized Financial Data

	Estimated Total	Total to September 30 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 7,944,758	$ 5,838,758	$ 1,116,000	$ 540,000	$ 450,000
Non-Federal:	500,000	500,000	--	--	--
Other Federal:	--	--	--	--	--
Total	$ 8,444,758	$ 6,338,758	$ 1,116,000	$ 540,000	$ 450,000

Description of Study

The Yakima River basin is located in Yakima, Kittitas, and Benton Counties in south-central Washington. The Federal Yakima Project and the Yakima Indian Reservation are located in the basin. Existing Yakima Project facilities include six storage reservoirs with a total storage capacity of over 1 million acre-feet. The study is being done cooperatively with Washington Department of Ecology, the Yakima Indian Nation, irrigation districts and others.

The Yakima River basin water supply is provided primarily from snow accumulation in the Cascade Mountain Range. The magnitude of snow and its runoff characteristics are critical to the type of "water year" experienced in the basin because existing reservoir capacity is not adequate to store and regulate water to meet the needs and also provide a carryover supply for water deficient years. The study is being directed at on- and off-reservation water problems and development opportunities. In off-reservation areas, structural and nonstructural solutions have been identified; additional storage potential and unappropriated flood flows to fill that capacity, together with improved system management efficiency, are measures to meet the needs. Storage potentials include enlargement of existing reservoirs as well as new facilities. Nonstorage measures identified in the planning studies to date include fishway improvements; improvements to existing conveyance and distribution systems to reduce water diversions; construction of off-system regulating facilities to store operational spills for subsequent release to meet peak demands; subordination of diversions for hydroelectric power generation to meet instream flow needs; and on-farm water conservation measures. Fishway improvements, identified as early action items, have received congressional construction authorization and are now being implemented under a Federal/non-Federal financing program. Opportunity exists for early implementation of other nonstorage/nonstructural measures. A plan for addressing on-reservation water needs and development options is being evaluated by the Yakima Indian Nation, and desirable actions will be incorporated with off-reservation proposals for implementation consideration.

The total estimated cost increased $1,100,091 and the completion date extended one year due to increased intensity of on-reservation programs in evaluating system improvement in water savings on the reservation's Wapato Irrigation Project and new water supply options in 3 subbasins within the reservation. Furthermore, the need for additional engineering, economic, and environmental evaluations of hydropower subordination and water savings within off-reservation irrigation districts resulted from recent public involvement activities.

GENERAL INVESTIGATIONS

ADVANCE PLANNING DATA SHEET

REGION Lower Colorado	PROJECT AND STATE All-American Canal Project, California	PREPARATION DATE December 1989

ADVANCE PLANNING SCHEDULE		PRECONSTRUCTION REPORT SCHEDULED FOR COMPLETION	BENEFIT/COST RATIO	
INITIATION	COMPLETION		DIRECT	DATE
FY 1987	FY 1990	September 1990	1/	

SUMMARIZED FINANCIAL DATA

Advance Planning Funding Schedule

	Estimated Total	Total To September 30 1989	Program FY 1990	Program FY 1991	Balance To Complete
Reclamation:	$ 1,266,990	$ 889,990	$ 377,000	$ --	$ --
Non-Federal:	10,000	10,000	--	--	--
Other Federal:	--	--	--	--	--
TOTALS	$ 1,276,990	$ 899,990	$ 377,000	$ --	$ --

PROJECT COST AND REPAYMENT ALLOCATION DATA

COST ALLOCATIONS		REPAYMENT		AMOUNTS PER ACRE	
Irrigation				Irrig. Invest.	Payment
Power		By Irrigators		Repayment of Invest.	Capacity
M&I Water		By Power		By Irrigators	AnnualCharges:
Recreation		By M&I Water		By Power Revenues	O&M
F&WL		By Ad Valorem		By M&I Water Users	Construction
Flood Control		By Others 2/	4,418,990		
Hwy Improvement		Non-Federal 3/	181,908,000		
Other		Nonreimbursable 4/	484,173		
Total	$ 186,811,163	Total	$ 186,811,163		

STATUS:

STATUS OF AUTHORITY: Feasibility Authority - P.L. 98-63 July 30, 1983 and P.L. 89-561 September 7, 1966	ESTIMATED CONSTRUCTION COST: $185,060,000
STATUS OF LAND CERTIFICATION: Not required	STATUS OF NEPA COMPLIANCE: Environmental statement PROJECTED/ACTUAL DATE: will be prepared in FY 1990

DESCRIPTION OF PROJECT: The project has two parts: the All-American Canal west of Yuma, Arizona, beginning south of Pilot Knob and extending west to Drop No. 4 and the Coachella Canal beginning at Siphon No. 7 and extending northward to Siphon No. 32. Initially it was contemplated that new lined canals be built along the present unlined canals. Now, the concept being developed is in-place membrane and concrete lining that could be installed during canal operation.

This project would provide opportunity to make beneficial use of the water currently being lost to the system through seepage. It is estimated that 62,000 to 78,000 acre-feet per year can be saved by lining the 30-mile portion of the All-American Canal. An additional 30,000 to 40,000 acre-feet of seepage per year can be conserved by lining the 38-mile unlined portion of the Coachella Canal. Since the Imperial Irrigation District and the Coachella Valley Water District irrigate year round, the canals could not be shut down for any length of time without interuption of service.

JUSTIFICATION: Construction will be 100 percent non-Federally funded by local water users holding water delivery contracts with the Secretary of the Interior. Estimated capital cost of construction using January 1989 prices is $111,224,000 for in-place lining of the All-American Canal and $65,956,000 for in-place lining of the Coachella Canal not including interest during construction. The unit cost of the conserved water delivered at Los Angeles is about $259 per acre-foot, including interest during construction and pumping cost. This cost is competitive with other projects for southern California water supply.

Footnotes:

1/ The benefit cost ratio is no longer required or meaningful. There is no Federal involvement in the project other than in a planning capacity. Other interested parties will make the feasibility decision according to minimum cost criteria.

2/ Identification of specific uses of conserved water has not been finalized. Both Imperial Irrigation District and the Metropolitan Water District of Southern California have expressed interest in using the water for municipal and industrial purposes and consideration is being given to providing some water to the San Luis Rey Band of Mission Indians. Reimbursable by others includes $1,266,990 estimated Advance Planning costs, and $3,152,000 which is 40 percent Federal share of estimated prototype costs.

3/ Non-Federal contributions includes $10,000 estimated non-Federal advance planning costs, $4,718,000 which is the 60 percent non-Federal share of estimated prototype costs, and $177,180,000 non-Federal construction costs.

Explanation of changes in allocation from FY 1990 Budget Justifications.

FY 1990 Estimate	FY 1991 Estimate
$173,844,980	$186,811,163

Increase of $12,966,183 includes +$250,000 for advance planning, +$7,870,000 prototype demonstration costs, and +$4,846,183 refinement of non-Federal construction costs.

4/ Feasibility Study

GENERAL INVESTIGATIONS

ADVANCE PLANNING DATA SHEET

REGION	PROJECT AND STATE	PREPARATION DATE
Mid-Pacific	Kellogg Unit, California	December 1989

ADVANCE PLANNING SCHEDULE		PRECONSTRUCTION REPORT SCHEDULED FOR COMPLETION	BENEFIT/COST RATIO	
INITIATION	COMPLETION		DIRECT	DATE
FY 1987	FY 1991	September 1991	1.39 to 1.00 1/	October 1990

SUMMARIZED FINANCIAL DATA

Advance Planning Funding Schedule

	Estimated Total	Estimated Total to September 30 1989	Program FY 1990	Program FY 1991 2/	Balance To Complete
Reclamation:	$ 350,670	$ 313,209	$ 37,461	$ --	$ --
Non-Federal:	173,000	--	173,000	--	--
Other Federal:	--	--	--	--	--
TOTALS	$ 523,670	$ 313,209	$ 210,461	$ --	$ --

PROJECT COST AND REPAYMENT ALLOCATION DATA

COST ALLOCATIONS		REPAYMENT		AMOUNTS PER ACRE	
Irrigation		By Irrigators		Irrig. Invest.	Payment
Power		By Power		Repayment of Invest.	Capacity
M&I Water	59,000,000	By M&I Water	58,550,000	By Irrigators	Annual Charges:
Recreation		By Ad Valorem		By Power Revenues	O&M
F&WL		By Others		By M&I Water Users	Construction
Flood Control		By Others			
Hwy Improvement					
Other		Nonreimbursable			
Total	$ 59,000,000	Total	$ 58,550,000		

STATUS:

STATUS OF AUTHORITY: Feasibility Authority P.L. 96-375	ESTIMATED CONSTRUCTION COST $59,000,000 (July 1986 Estimate)
STATUS OF LAND CERTIFICATION: Not Required	STATUS OF NEPA COMPLIANCE: ND Planning Report/draft EIS PROJECTED/ACTUAL DATE: filed December 1, 1988

DESCRIPTION OF PROJECT: The Highline Conduit alternative has been identified as the preferred alternative. The intake of the Contra Costa Canal would be relocated from Rock Slough to Clifton Court Forebay, where the water quality is generally better. The Highline Conduit alternative could also serve as the intake to a future Kellogg or Los Vaqueros Reservoir. The feasibility of a future reservoir is being studied under the Offstream Storage study. Contra Costa Water District supports the study and is in the process of purchasing the Kellogg and Los Vaqueros sites.

JUSTIFICATION: The current water quality at the canal intake at Rock Slough is subject to tidal fluctuations from the Pacific Ocean. During the 1976-77 drought, the hydraulic barrier which controls saltwater incursion could not be maintained due to lack of sufficient storage in upstream reservoirs. Chloride concentrations at the intake approached 320 mg/l and total dissolved solids reached about 750 mg/l. High chloride concentrations can also result from Delta levee failure, which facilitates the drawing of saltwater from the Bay into the Delta. Following the Andrus Island levee break on June 21, 1972, the chloride concentration reached a peak on July 4 of 443 mg/l and remained over 100 mg/l until early September. High salinity level due to levee failures could occur again, considering the age of the Delta levees, and their general state of disrepair. During the drought and the levee failure, maximum concentrations for chlorides set by the Environmental Protection Agency for drinking water were exceeded. Relocation of the intake to a source of improved water quality further away from the effects of tidal fluctuations and areas of potential levee failure is needed in order to improve the quality of water that can be delivered by the Contra Costa Canal for municipal and industrial uses during all types of water years.

Footnotes:

1/ Based on the Highline Conduit as the preferred alternative in the Commissioner's Planning Report filed December 1, 1988. Based on 8-7/8 percent interest.

2/ The study will be completed under the Minor Work on Completed Investigations using Contra Costa Water District funds.

GENERAL INVESTIGATIONS	ADVANCE PLANNING DATA SHEET		
REGION Great Plains	PROJECT AND STATE Prairie Bend Unit, Nebraska		PREPARATION DATE December 1989
ADVANCE PLANNING SCHEDULE	PRECONSTRUCTION REPORT SCHEDULED FOR COMPLETION	BENEFIT/COST RATIO	
INITIATION / COMPLETION		DIRECT 1/	DATE
FY 1989 / FY 1990	N/A	1.23 to 1	October 1989

SUMMARIZED FINANCIAL DATA

Advance Planning Funding Schedule

	Estimated Total	Total To September 30 1989	Program FY 1990	Program FY 1991	Balance To Complete
Reclamation:	$ 977,227	$ 827,227	$ 150,000	$ --	$ --
Non-Federal:	--	--	--	--	--
Other Federal:	--	--	--	--	--
TOTALS	$ 977,227	$ 827,227	$ 150,000	$ --	$ --

PROJECT COST AND REPAYMENT ALLOCATION DATA

COST ALLOCATIONS		REPAYMENT		AMOUNTS PER ACRE			
Recharge	107,588,000	By Irrigators and/or Ad Valorem Tax	107,588,000	Irrig. Invest.	2,097	Payment Capacity	N/A
M&I Water		By Recreation	2,244,000	Repayment of Invest.		Annual Charges:	
F&WL	3,327,000	By F&WL	239,000	By Irrigators and/or Ad Valorem	2,097	O&M	5.95
Flood Control				By M&I Water Users		Construction	N/A
Hwy. Impr.							
Recreation	12,317,000	By Others					
Env.Quality	214,477,000	Nonreimbursable 5/	232,779,000				
Other 4/	5,141,000						
Total	342,850,000	Total	342,850,000		2/		2/

STATUS: 3/

STATUS OF AUTHORITY: Feasibility Authority PL 98-63, July 30, 1983	ESTIMATED CONSTRUCTION COST: $342,706,000
STATUS OF LAND CERTIFICATION:	STATUS OF NEPA COMPLIANCE: Projected DES PROJECTED/ACTUAL DATE: February 1990

DESCRIPTION OF PROJECT: The Prairie Bend project, located in Central Nebraska, proposes to divert Platte River water for groundwater recharge north of the river in Hall and Buffalo counties while protecting Platte River instream flows for maintenance and enhancement of endangered species and migratory waterfowl habitat. The recharge water would be provided by seepage from canals, storage reservoirs, and recharge ponds. The project would provide 80,000 acre-feet of average annual recharge and would operate year round to provide the optimum amount of recharge water available from the Platte River. The habitat maintenance and enhancement will be accomplished through augmenting low streamflow by storing excess river flows in a 250,000 acre-foot storage reservoir for release when required and by purchasing 14,000 acres of land along the Platte River for management and improvement of endangered species and migratory waterfowl habitat.

JUSTIFICATION: The economic base of the project area consists primarily of irrigated agriculture. The groundwater levels are declining. Future projections by several different studies predict major groundwater declines in the area. These declines will cause substantial areas of land to go out of irrigated agricultural production, increase pumping costs for the remaining irrigated land as well as greatly increase nitrate concentration in the groundwater. The project would provide water for irrigation use, drinking water supplies for towns and rural residents, surface water recreation, groundwater quality enhancement and Platte River flow augmentation for environmental concerns. The Prairie Bend project provides an opportunity to make use of excess Platte River flows for the benefit of many interests in the Platte River valley.

The Prairie Bend project will meet the Feasibility Study Authorization's objectives which include irrigation, stabilization of groundwater levels, enhancement of water quality, as well as small community and rural domestic water supplies and public outdoor recreation, and management of fish and wildlife habitat while making sure that the plans are consistent with the Endangered Species Act and the Migratory Bird Treaty Act.

Footnotes:

1/ Benefit/cost ratio for the National Economic Development (NED) plan is based on 8-7/8 percent discount rate and customized economic procedures utilized in field draft Proposed Regional Director's Planning Report/Advance Draft Environmental Statement (PRDPR/ADES) dated Nov. 89.

2/ The proposed project is to recharge the aquifer in Buffalo and Hall counties. Several scenarios of repayment are possible including irrigators and ad valorem tax. Studies to date indicate repayment ability without assistance from power revenues.

3/ Completion of the Draft Environmental Statement for filing with Environmental Protection Agency is contingent upon the establishment of instream flow needs for the endangered species, identification of channel maintenance flows and definition of criticial flow periods. These issues were sufficiently resolved to incorporate into a revised biological assessment in March 1989. The Fish and Wildlife Service issued a Biological Opinion in April 1989 and a final Coordination Act Report in May 1989. A Planning Report/Draft Environmental Statement will be ready for filing with EPA in February 1990.

4/ Includes preauthorization investigations and historical and archeological costs.

5/ Includes $214,477,000 for habitat, $10,072,000 nonreimbursable recreation, $5,141,000 non reimbursable preauthorization costs, $3,089,000 nonreimbursable fish and wildlife costs.

GENERAL INVESTIGATIONS	ADVANCE PLANNING DATA SHEET		
REGION Mid-Pacific	PROJECT AND STATE Refuge Water Supplies, California		PREPARATION DATE December 1989

ADVANCE PLANNING SCHEDULE		PRECONSTRUCTION REPORT SCHEDULED FOR COMPLETION	BENEFIT/COST RATIO	
INITIATION	COMPLETION		DIRECT	DATE
FY 1990	FY 1990	September 1990	1/	October 1990

SUMMARIZED FINANCIAL DATA

Advance Planning Funding Schedule

	Estimated Total	Estimated Total To September 30 1989	Program FY 1990	Program FY 1991	Balance To Complete
Reclamation:	$ 13,000	$ --	$ 13,000	$ --	$ --
Non-Federal:	65,000	--	65,000	--	--
Other Federal:	--	--	--	--	--
TOTALS	$ 78,000	$ --	$ 78,000	$ --	$ --

PROJECT COST AND REPAYMENT ALLOCATION DATA

COST ALLOCATIONS	REPAYMENT	AMOUNTS PER ACRE	
Irrigation	By Irrigators	Irrig. Invest.	Payment
Power	By Power	Repayment of Invest.	Capacity
M&I Water	By M&I Water	By Irrigators	Annual Charges:
Recreation	By Ad Valorem	By Power Revenues	O&M
F&WL	By Others	By M&I Water Users	Construction
Flood Control	By Others		
Hwy Improvement			
Other	Nonreimbursable		
Total	Total		

STATUS:

STATUS OF AUTHORITY: Feasibility Authority - P.L. 99-546	ESTIMATED CONSTRUCTION COST: Uncertain at this time
STATUS OF LAND CERTIFICATION: None required	STATUS OF NEPA COMPLIANCE: PROJECTED/ACTUAL DATE: To be determined after completion of water marketing EIS's new schedule

DESCRIPTION: Water needs and alternative plans for water delivery to each of the 15 managed wetland areas are presented in a document entitled "Report on Refuge Water Supply Investigations, Central Valley Hydrologic Basin, California" (March 1989). Plan selection of full delivery alternatives (Level 4) will now be conducted. The recommended Level 4 Plan for each area will be incorporated into the report. Further activities will be dependent upon water contracting Environmental Impact Statement schedules and/or Congressional legislation requiring Reclamation to provide firm water supplies to one or more of the areas.

JUSTIFICATION: In National Priority for Protection, the Central Valley ranks Number 1 for wintering migratory bird habitat and Number 4 overall. Annually the Central Valley supports about 5.6 million wintering waterfowl, along with other migratory and resident birds and wildlife; including numerous threatened and endangered species. The Federal and State refuges are the only wetlands in the Central Valley specifically managed for wintering and migration habitat, other wetland-related wildlife, prevention of crop depredation, and a variety of recreational opportunities. The Pacific Flyway management is governed in part by international treaties with Canada, and Mexico.

Footnotes:

1/ During Plan Formulation, an economic efficiency analysis in accordance with NEPA procedures will be performed. As we do not believe that unity can be achieved under these procedures, we anticipate requesting an exclusion from the National Economic Development (NED) evaluation criteria, due to Department of Interior public trust responsibility for maintaining habitat for the migratory birds of the Pacific Flyway, and for endangered species.

GENERAL INVESTIGATIONS — **ADVANCE PLANNING DATA SHEET**

REGION Mid-Pacific	PROJECT AND STATE San Joaquin Conveyance, California	PREPARATION DATE December 1989

ADVANCE PLANNING SCHEDULE		PRECONSTRUCTION REPORT SCHEDULED FOR COMPLETION	BENEFIT/COST RATIO	
INITIATION	COMPLETION		DIRECT	DATE
FY 1987	FY 1990	Concluding Report March 1990	1.05 to 1.00 1/	October 1990

SUMMARIZED FINANCIAL DATA

Advance Planning Funding Schedule

	Estimated Total	Total To September 30 1989	Program FY 1990	Program FY 1991	Balance To Complete
Reclamation:	$ 100,375	$ 4,375	$ 96,000	$ --	$ --
Non-Federal:	135,000	--	135,000	--	--
Other Federal:	--	--	--	--	--
TOTALS	$ 235,375	$ 4,375	$ 231,000	$ --	$ --

PROJECT COST AND REPAYMENT ALLOCATION DATA

COST ALLOCATIONS		REPAYMENT 2/		AMOUNTS PER ACRE			
Irrigation	284,220,000	By Irrigators	284,220,000	Irrig. Invest. 5/	1,341	Payment	
Power		By Power		Repayment of Invest.		Capacity	257
M&I Water		By M&I Water		By Irrigators	1,341	Annual Charges:	
Recreation		By Ad Valorem		By Power Revenues		O&M 3/	62
F&WL	42,001,000	By Others		By M&I Water Users		Construction	16
Flood Control		By Others					
Hwy Improvement							
Other		Nonreimbursable	42,001,000				
Total 4/	$ 326,221,000	Total	$ 326,221,000				

STATUS:

STATUS OF AUTHORITY: Feasibility Authority, P.L. 89-561	ESTIMATED CONSTRUCTION COST: $326,221,000 (January 1988 Estimate)
STATUS OF LAND CERTIFICATION: In the process of updating	STATUS OF NEPA COMPLIANCE: PROJECTED/ACTUAL DATE: Pending water contracting EIS completion

DESCRIPTION OF PROJECT: The construction of the Mid-Valley Canal and wheeling through the California Aqueduct has been identified as the preferred alternative. Water would be conveyed from the Delta to O'Neill Forebay using available capacity in the California Aqueduct. At O'Neill Forebay water would be distributed to the North and Middle subareas of the San Joaquin Valley via the Delta-Mendota Canal to Mendota Pool. The Mid-Valley Canal, would be constructed to divert water out of Mendota Pool south down the center of the east side of the valley and terminate at Kings River. Additional facilities to be constructed might include an intertie between the Cross Valley Canal and Friant-Kern Canal and a diversion facility from the Kings River to the Friant-Kern Canal.

In addition to the construction of the Mid-Valley Canal, studies are being performed to evaluate the potential of using wetland habitat to store additional water supplies for use in the service area. Exchanges between existing water rights holders and contractors would be required to fully implement the plan.

JUSTIFICATION: Construction of facilities to develop and convey surface water supplies to the San Joaquin Valley has not kept pace with the need for water service. As a consequence, pumpage of ground-water principally for irrigation in many places in the valley exceeds the rate of replenishment. As continued ground-water development occcurs, water levels will continue to decline and pumping costs will increase. This may result in many areas being unable to compete economically and going out of production.

Corollary problems associated with the overdraft are in the increasing ground-water pumping costs, water quality deterioration, and land subsidence. Other water and related problems in the study area are drainage, flooding and fish and wildlife deterioration.

The study area's major need is for supplemental water supply of approximately 1 million acre-feet to replace supplies that are estimated to be currently obtained from ground-water overdraft.

To assure that current and future levels of agricultural production in the San Joaquin Valley are maintained, a plan for importing additional surface supplies needs to be developed, evaluated, and implemented.

Footnotes:

1/ Based on constructing the Mid-Valley Canal with water wheeled through the California Aqueduct, enlarging the Delta-Mendota Canal and development of a water supply for wetland habitat. Analysis at 8-5/8 percent interest, per "Report on San Joaquin Conveyance Investigation" dated April 1989 (July 1985) costs. Modifications have been made to the plan that have increased costs. Additional benefits were identified for groundwater pump savings that have improved the benefit/cost ratio.

2/ Several repayment options have been performed. This analysis was based on full integration of conveyance plan irrigation costs into the remaining Central Valley Project costs. Fish and Wildlife costs are included as nonreimbursable.

3/ Annual O&M charges have been escalated at 4-1/2 percent per year to the year 1996.

4/ Total estimated cost increased due to reformulation of plan. Additional costs for enlarging the Delta-Mendota Canal ($59 million) and wetland storage ($17.221 million)

5/ The project is a supplemental water supply to 2.8 million acre service area to offset groundwater overdraft. Irrigation investment per acre is computed based upon a full service equivalent water supply.

GENERAL INVESTIGATIONS — ADVANCE PLANNING DATA SHEET

REGION Pacific Northwest	PROJECT AND STATE Umatilla Basin Project, Oregon	PREPARATION DATE December 1989

ADVANCE PLANNING SCHEDULE		PRECONSTRUCTION REPORT SCHEDULED FOR COMPLETION	BENEFIT/COST RATIO	
INITIATION	COMPLETION		DIRECT	DATE
FY 1987	FY 1990	September 1990	1.5 to 1.0 1/	April 1988

SUMMARIZED FINANCIAL DATA

Advance Planning Funding Schedule

	Estimated Total	Total To September 30 1989	Program FY 1990	Program FY 1991	Balance To Complete
Reclamation:	$ 1,776,533	$ 1,734,533	$ 42,000	$ --	$ --
Non-Federal:	--	--	--	--	--
Other Federal:	--	--	--	--	--
TOTAL	$ 1,776,533	$ 1,734,533	$ 42,000	$ --	$ --

PROJECT COST AND REPAYMENT ALLOCATION DATA

COST ALLOCATIONS		REPAYMENT		AMOUNTS PER ACRE	
Irrigation		By Irrigators		Irrig. Invest.	Payment
Power		By Power		Repayment of Invest.	Capacity
M&I Water		By M&I Water		By Irrigators	Annual Charges:
Recreation		By Ad Valorem		By Power Revenues	O&M
F&WL	52,285,000	By Others		By M&I Water Users	Construction
Flood Control		By Others	4,139,000		
Hwy Improvement			2/		
Other		Nonreimbursable	48,146,000		
Total	$ 52,285,000	Total	$ 52,285,000		

STATUS:

STATUS OF AUTHORITY: Public Law 88-561 and Public Law 100-557	ESTIMATED CONSTRUCTION COST: $ 52,285,000
STATUS OF LAND CERTIFICATION: Not required	STATUS OF NEPA COMPLIANCE: Final EIS filed PROJECTED/ACTUAL DATE: February 1988

DESCRIPTION OF PROJECT: The investigation has been directed at meeting anadromous fishery water supply needs. A Recommended Plan to help resolve the fishery problem has been identified. This plan is part of a basinwide fishery enhancement program to restore salmon runs and to enhance steelhead runs in the Umatilla River Basin. The plan's major feature is that of improving Umatilla River streamflows by "importing" water from the neighboring Columbia River. The State of Oregon, Confederated Tribes of the Umatilla Indian Reservation, and Bonneville Power Administration (under direction of the Northwest Power Planning Council's Fish and Wildlife Program) and others are making concurrent investments with a potential total of $21 million.

The Columbia River pumping feature includes a program wherein water would be pumped from the Columbia River into irrigation distribution systems for irrigators. Use of this water by irrigators would permit Umatilla River water which is now diverted or stored for irrigation use to remain in the Umatilla River to improve flow conditions in the lower basin. Structural features include a major pumping complex and related facilities on the Columbia River, smaller pumping stations, and carriage facilities. In addition to these features, the plan proposes improvements to fish passage facilities and installation of protective screens at some existing irrigation diversions. A significant plan feature is a post construction monitoring program which would "fine tune" flow improvements and other measures to maximize project effectiveness in meeting fishery enhancement objectives.

The water exchange programs would provide a dependable water supply to the irrigation districts. The proposed operation may remove the potential for an Indian/non-Indian confrontation and possible litigation over the basin's water supply. Continuation of the irrigation water supply would help to stabilize the existing economy of the basin. The Planning Report/Final Environmental Statement was filed in February 1988 and project construction has been authorized in Public Law 100-557, October 1988.

Advance planning work is focusing on refining recommended plan facilities and operations, and on the collection of design data, further design and estimating for project features, completion of studies and activities related to environmental compliance, arrangements with the State of Oregon, fishery agencies, and irrigation districts for the water exchange and use of facilities, and other activities prerequisite to initiating construction.

JUSTIFICATION: The Umatilla basin steelhead and salmon fishery has been weakened by the degradation of fisheries habitat. The commercial, sport, and Indian commercial and subsistence fisheries have suffered. The Confederated Tribes of the Umatilla Indian Reservation are pursuing reestablishment of strong steelhead and salmon runs in the Umatilla basin. The tribes have a fisheries restoration program underway which is dependent upon securing an adequate water supply. A combination of structural and nonstructural solutions to insufficient flows and habitat degradation appears possible. Diversions from the Columbia River into the basin for irrigation would enhance low summer streamflows, greatly increasing fish production. Reclamation has worked with Indian and non-Indian interests to arrive at an agreeable development plan which would allow fishery enhancement objectives to be reached and at the same time permit irrigation and other present water uses to continue.

Umatilla Basin Project, Oregon (Continued)- 3

There is general agreement among Indian and non-Indian water interests that expedtious Federal action is required to provide the water necessary to restore Umatilla River salmon and steelhead runs. Taking such action may avoid a major legal confrontation and social, economic, and political issue between Indian and non-Indian residents. Further, the capability of the existing Federal Umatilla reclamation project to meet its water supply commitments would be seriously affected should Federal court action require utilization of project water supplies to protect reserved treaty rights of the tribes.

Footnotes:

1/ Benefit/cost ratio computed at 8-7/8 percent interest based on the PR/DES, February 1988.

2/ Purpose of project is to meet treaty fishery objectives of the Confederated Tribes of the Umatilla Indian Reservation in the Umatilla River, while allowing current irrigation and other present water uses to continue. The project is part of a cooperative effort by the tribes, State, Bonneville Power Administration ratepayers, Reclamation and others. Non-Federal entities are implementing concurrent fishery enhancement programs in the basin with potential investment cost of $21 million. In addition, non-Federal groups would cost-share on specific features of Reclamation's proposed project.

ITEMIZATION OF ESTIMATES
(In Thousands of Dollars)

Department of the Interior
Appropriation Title: General Investigations

Bureau of Reclamation

	Estimated 1990	Estimated 1991	Increase or Decrease
Program and Financing:			
Total direct program	13,752	11,456	(2,296)
Application of Prior Year Funds	(2,383)	0	2,383
Appropriation	11,369	11,456	87
Object Classification			
11.0 Personnel Compensation	4,788	4,815	27
12.1 Personnel Benefits	906	919	13
13.0 Benefits for Former Personnel	11	13	2
21.0 Travel and Transportation	491	514	23
22.0 Transportation of Things	61	58	(3)
23.1 Rental Payments to GSA	93	103	10
23.2 Rental Payments to Others	1	1	0
23.3 Communication, Utilities, Miscellaneous	89	87	(2)
24.0 Printing	78	81	3
25.0 Other Services	6,991	4,553	(2,438)
26.0 Supplies and Materials	123	164	41
31.0 Equipment	118	144	26
32.0 Lands and Structures	1	0	(1)
41.0 Grants, Subsidies, and contributions	0	5	5
43.0 Interest and Dividends	1	0	(1)
99.0 Total Obligations	13,752	11,456	(2,295)

CONSTRUCTION PROGRAM

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Project or Activity	State	Page Number
All-American Canal Project (D&MC)	Arizona	289
Animas-LaPlata Project (UCRBF)	Colorado-New Mexico	338
Auburn-Folsom South Unit, Central Valley	California	145
Belle Fourche (P-SMBP)	South Dakota	246
Boise Project (D&MC)	Idaho	289
Bonneville Unit, Central Utah (UCRBF)	Utah	350
Boulder Canyon Project	Arizona-Nevada	131
Bradbury Dam, Cachuma Project (Safety of Dams)	California	301
Brantley Project	New Mexico	289
Buffalo Bill Dam Modification (P-SMBP)	Wyoming	277
BIA Dam Safety Program	Various	303
Central Arizona Project (Includes Water Development, Power Development, and Non-Indian Distribution Systems)	Arizona-California-New Mexico Nevada-Utah	378
Central Utah (UCRBF):		
Bonneville Unit	Utah	350
Jensen Unit (D&MC)	Utah	367
Uintah Unit (Preconstruction Activity)	Utah	322
Central Valley	California	136
Chief Joseph Dam:		
Oroville-Tonasket Unit (D&MC)	Washington	289
Colorado-Big Thompson Project	Colorado	293
Colorado River Basin Salinity Control:		
Title I Division	Arizona-California	123
Title II Division:		
Grand Valley Unit	Colorado	192
Lower Gunnison Basin Unit	Colorado	198
Paradox Valley Unit	Colorado	203
Colorado River Bridge Crossing	Arizona-Nevada	106
Colorado River Front and Levee System (D&MC)	Arizona-Colorado	289

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Project or Activity	State	Page Number
Columbia Basin	Washington	261
Columbia Basin, Third Powerplant	Washington	266
Coolidge Dam Modification (Safety of Dams)	Arizona	303
Cultural Resources Activities (D&MC)	Various	289
Dallas Creek (UCRBF) (D&MC)	Colorado	367
Deer Flat Dam, Boise Project (Safety of Dams)	Idaho	301
Departmental Dam Safety Program (Safety of Dams)	Various	303
Dolores (UCRBF)	Colorado	327
Drainage and Minor Construction (C&R)	Various	288
Drainage and Minor Construction (UCRBF)	Various	367
East Bench Unit (P-SMBP) (D&MC)	Montana	290
Farwell Unit (P-SMBP) (D&MC)	Nebraska	290
Fryingpan-Arkansas (D&MC)	Colorado	290
Garrison Diversion Unit (P-SMBP)	North Dakota-South Dakota	229
General Statement of Construction Program	Various	91
Gila Project (D&MC)	Arizona	290
Glendo Unit (P-SMBP) (D&MC)	Wyoming	293
Global Climate Change	Various	310
Grand Valley Unit (CRBSCP)	Colorado	192
Groundwater Recharge Demonstration Program	Various	312
Headgate Rock Hydroelectric Project (BIA)	Arizona	117
Highland-Hanover Division (P-SMBP) (R&B)	Wyoming	296
Hyrum (R&B)	Utah	296
Hyrum (Safety of Dams)	Utah	301
Indian Water Rights Settlement Projects	Arizona	111
Initiate SOD Corrective Action	Various	302
Itemization of Estimate:		
Construction Program	Various	405
Colorado River Basin Project	Various	406
Upper Colorado River Basin Fund	Various	407

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Project or Activity	State	Page Number
Jensen Unit, Central Utah (UCRBP)	Utah	367
Klamath (D&MC)	Oregon-California	290
Lower Gunnison Basin Unit	Colorado	198
Leadville Mine Drainage Tunnel (D&MC)	Colorado	290
Little Panoche Dam, CVP (Safety of Dams)	California	305
Los Banos Dam, CVP (Safety of Dams)	California	305
McGee Creek (D&MC)	Oklahoma	290
Method of Financing Table for Construction Program	Various	100
Milk River, Glasgow Division (R&B)	Montana	296
Milk River, Malta Division (R&B)	Montana	296
Minidoka Project (D&MC)	Idaho-Wyoming-Utah	290
Minidoka, Jackson Lake Dam (Safety of Dams)	Idaho-Wyoming	301
Miscellaneous Project Programs, Central Valley	California	176
Mni Wiconi Project	South Dakota	100
Modification Reports and Preconstruction Activity (Safety of Dams)	Various	302
Newlands (D&MC)	Nevada	290
North Loup Division (P-SMBP)	Nebraska	217
Oahe Unit (P-SMBP) (D&MC)	South Dakota	291
Ogden River Project (R&B)	Utah	296
O'Neill Dam, CVP (Safety of Dams)	California	301
O'Neill Unit (P-SMBP)	Nebraska	225
Owl Creek Unit (P-SMBP) (D&MC)	Wyoming	291

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Project or Activity	State	Page Number
Paradox Valley Unit (CRBSCP)	Colorado	203
Recreation Facilities at Existing Reservoirs	Various	291
Recreational and Fish and Wildlife	Various	369
Rehabilitation and Betterment	Various	295
Sacramento River Division, Central Valley	California	176
Safety of Dams Program	Various	299
Salt River Project, CAP, Plan 6 (Safety of Dams)	Arizona	302
Salt River Project:		
Bartlett Dam (Safety of Dams)	Arizona	301
Horseshoe Dam (Safety of Dams)	Arizona	301
Stewart Mountain Dam (Safety of Dams)	Arizona	301
San Angelo, Twin Buttes Dam (Safety of Dams)	Texas	306
San Carlos Irrigation, Coolidge Dam (Safety of Dams)	Arizona	303
San Felipe Division, Central Valley	California	153
San Luis Unit, Central Valley	California	160
San Luis Valley, Closed Basin Division	Colorado	210
Science and Technology	Various	308
Seedskadee (UCRBF) (Safety of Dams)	Wyoming	306
Title I Division (CRBSCP)	Arizona-California	123
Trinity River Restoration Program, CVP	California	172
Uintah Unit, Central Utah (UCRBF) (Preconstruction Activity)	Utah	322
Umatilla Project	Washington	101
Upper Bluff Division (P-SMBP) (R&B)	Wyoming	297
Velarde Community Ditch (D&MC)	New Mexico	294

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Project or Activity	State	Page Number
Washita, Foss Dam (Safety of Dams)	Oklahoma	306
Washoe (D&MC)	Nevada-California	291
Water Technology and Environmental Research	Various	316
W. C. Austin, Altus Dam (Safety of Dams)	Oklahoma	302
Weber Basin Project (D&MC)	Utah	294
Weber Basin Project (R&B)	Utah	297
WEB Rural Water Development	South Dakota	254
Wetlands Development	Various	291
Yakima Project:		
Fish Passage and Protective Facilities	Washington	292

CONSTRUCTION PROGRAM

General Statement

Summarized Financial Data:

Fiscal Year 1990:		
Appropriation (Reflects Public Law 99-177 reduction of - $9,270,000) 1/	$652,850,000	
Application of Prior Year Funds	26,385,777	
Non-Federal Participation - Cash	40,929,000	
Other Federal Agency Participation	300,000	
Total Obligations, Fiscal Year 1990		720,464,777
Non-Federal Participation - Services	2,596,000	
Total Program, Fiscal Year 1990		$723,060,777
Fiscal Year 1991:		
Estimate of Appropriation 1/	$609,430,000	
Non-Federal Participation - Cash	90,980,000	
Other Federal Agency Participation	300,000	
Total Obligations, Fiscal Year 1991		700,710,000
Non-Federal Participation - Services	2,796,000	
Total Program, Fiscal Year 1991		$703,506,000

All ongoing construction activities for fiscal year 1991 can be performed under current authorization except work scheduled on Buffalo Bill Dam Modification and the Groundwater Recharge Demonstration Program. In addition, there are nine projects 2/ that would require legislation to increase appropriation ceilings before they can be completed

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1/ Includes underfinancing of $50,033,000 in fiscal year 1990 and $32,187,000 in fiscal year 1991.

2/ Auburn-Folsom South Unit, San Felipe Division, and San Luis Unit, CVP; Title I Division and Title II Division, CRBSCP; Colorado River Storage Project (Public Law 84-485, amended by Public Law 92-370, and Public Law 90-537); Garrison Diversion Unit, Pick-Sloan Missouri Basin Program; and Washoe Project.

as authorized. Because of the requirement for new authorizing legislation relative to the reformulated O'Neill Unit, a new project cost estimate and appropriation ceiling remains to be determined.

For fiscal year 1991, the Bureau of Reclamation requests $609,430,000 for the construction program. In addition to this amount, $90,980,000 would be provided by non-Federal sources and $300,000 by another Federal agency. In keeping with the Administration's policy on the construction of water resources projects, this request will allow work to continue on schedule for those projects substantially underway. During fiscal year 1991, construction will be underway on 24 major projects and a number of smaller projects and programs, including Science and Technology activities. The request does not include funding for the Garrison Diversion Unit, the Mni Wiconi Project, or the Umatilla Project.

The appropriation request of $609,430,000 provides for a total scheduled program of $641,617,000 which has been reduced by an underfinancing amount of $32,187,000. This funding level represents Reclamation's budget authority and finances work on multipurpose construction and preconstruction projects. It is subdivided as follows: $486,561,000 for regular project construction, $13,303,000 for science and technology, $26,015,000 for drainage and minor construction, $6,170,000 for rehabilitation and betterment, $81,550,000 for the Safety of Dams Program, $26,968,000 for recreation and fish and wildlife facilities in the Upper Colorado River Basin, and $1,050,000 for preconstruction activities on two projects. Figure 1 on page 94 illustrates the elements which comprise the projected fiscal year 1991 funding requirements for the total scheduled program.

Within the Federal funds provided for the proposed construction program, $511,285,000 is required to meet obligations committed by work underway prior to fiscal year 1991. An additional $130,332,000 is needed to fund new activities which include new contract awards, land acquisitions, materials and supplies, and data collection and design. A tabulation of the new major contract awards appears in Table 1 on page 96. Figure 2 on page 95 shows the total scheduled program of $641.6 million by percentage composition.

In fiscal year 1991, non-Federal cost-sharing funds of $90,980,000 will be available to perform work in the Construction Program. The majority of these funds will be concentrated on the Buffalo Bill Dam Modifications ($7.6 million); the Central Arizona Project ($66.2 million); the All-American Canal Project ($1.5 million); the Central Valley Project, San Luis Unit ($2.1 million), and O'Neill Dam ($2.4 million); the San Luis Valley Project, Closed Basin Division ($4.9 million); Animas-LaPlata Project ($2.3 million); the Salt River Project, Safety of Dams ($1.7 million); and the Science and Technology Program ($1.4 million).

Physical accomplishments in fiscal year 1991 reflect the application of appropriations in previous years. Fiscal year 1991 appropriations are anticipated to provide additional water and power service in the years ahead. During 1991, facilities will be completed which are capable of supplying both supplemental and full water supplies to approximately 211,400 acres of farmland and 37,200 acre-feet of municipal and industrial water, and 33,000 acre-feet of salvage water.

FY 1991 CONSTRUCTION PROGRAM
Total Scheduled Program: $641,617 *
(In thousands of dollars)

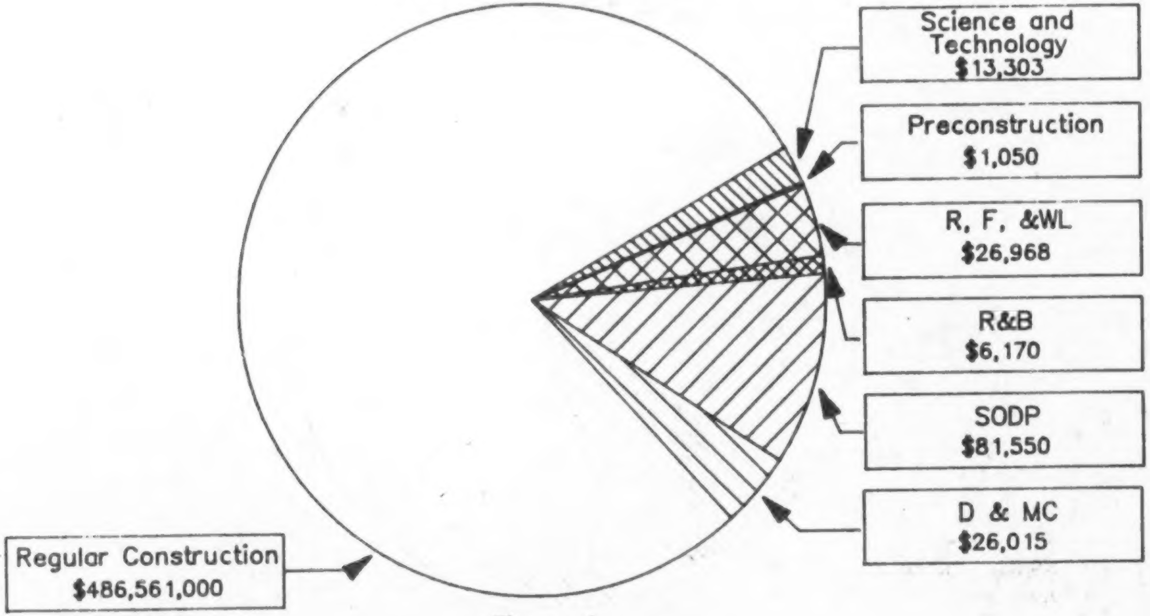

Figure 1
Program by Type of Work

*Represents total Reclamation requirements without
the non-Federal and other Federal amount ($91,280,000)
and the application of underfinancing ($32,187,000).

FY 1991 CONSTRUCTION PROGRAM*
(In Thousands of Dollars)

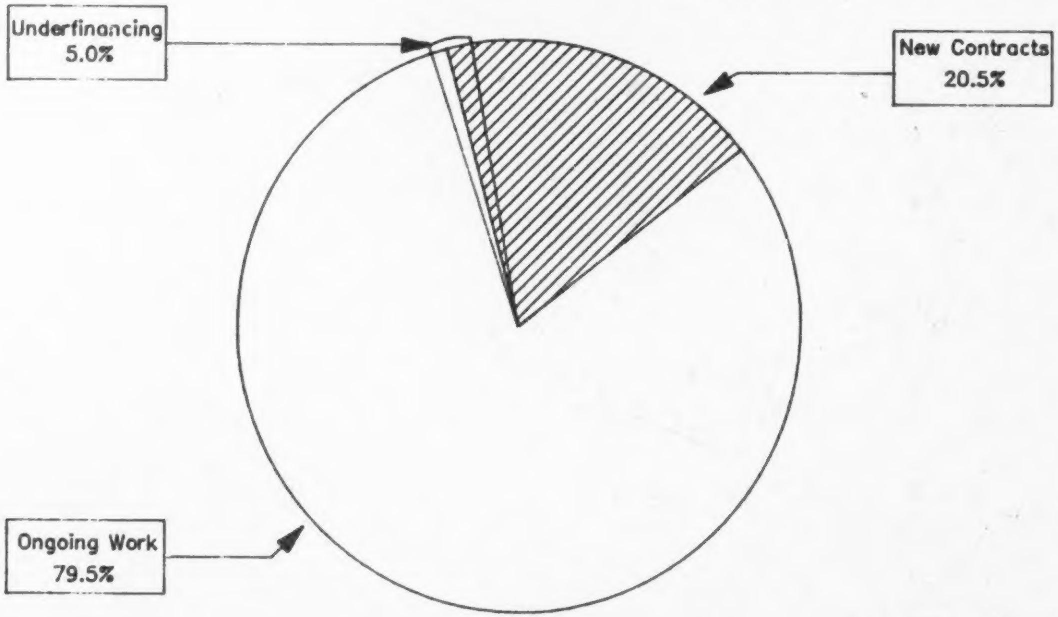

Figure 2
Total Scheduled Program

*Illustrates the proportion of new contracts to ongoing construction work without the application of $32,187,000 of underfinancing.

Table 1

Construction Program
NEW CONTRACT AWARDS IN EXCESS OF $1 MILLION TOTAL ESTIMATED COST
(Dollars in Thousands) 1/

Project and Type of Work	TEC of Major Contracts	FY 1991 1/
Belle Fourche Unit, P-SMBP		
Gregory Lateral	1,100	5
North Canal - Reach 3	1,200	5
South Canal - Stage 3	1,200	5
Boulder Canyon Project		
Multi-Story Parking Structure	11,500	4,000
Visitors' Tour Center	13,350	5,000
Buffalo Bill Dam Modifications, P-SMBP		
Campground Improvements	1,600	800
Visitor Center	1,100	1,100
Powerplant Dissipator Structure	3,000	1,200
Indian Water Rights Settlement Projects		
San Xavier New Farm Construction	5,366	2,393
North Loup Division, P-SMBP		
Access Road Relocation, Davis Creek	1,160	1,160
Fullerton Canal/Lateral Control Structures	18,000	1,545
Sacramento River Division, CVP		
Rehabilitate Red Bluff Fish Ladder	2,045	2,045
San Luis Unit, CVP		
Arroyo Pasajero - Stage 1	5,766	766
San Luis Valley, Closed Basin		
Construct Laterals, Stage 5	3,969	1,965

1/ Includes non-Federal funds.

Project and Type of Work	TEC of Major Contracts	FY 1991 1/
Trinity River Restoration Program, CVP		
Lewiston-Weitchpec Channel Restoration	8,336	1,500
Monitoring Weir-Trinity River	1,500	1,000
Boise Project		
Minimum Basic Health and Safety Facil.	1,000	700
Colorado River Front Work/Levee System		
Levee Armoring-Mid-Mohave Reach 3	2,200	100
Parker Davis Channel Modification	1,700	500
Klamath Project		
Rehabilitate Sumps 2 and 3	1,711	420
Minidoka Project, D&MC		
Minimum Basic Health & Safety Facilities II	2,300	500
Yakima Fish Passage/Protective Facilities		
Screen Repair Shop	2,500	2,500
O'Neill Dam, CVP, SODP		
Modification/O'Neill Dam Reservoir	3,500	3,000
Salt River, Horseshoe Dam		
Horseshoe Dam Access Road Improvements	3,010	4
San Carlos Irrigation - Coolidge Dam		
Access Road	3,834	1,704
CRBSCP, Title I Division		
Biocide Handling Facility	3,500	900

1/ Includes non-Federal funds.

Project and Type of Work	TEC of Major Contracts	FY 1991 1/
CRBSCP, Grand Valley Unit		
Mesa County Irrigation District Laterals	2,809	389
Moss Screen Near Cameo (Govt.)	1,048	55
Wildlife Land Development Stage 2	2,304	678
Government Highline Lateral A-41	4,000	2,500
East Government Highline Canal	13,878	100
Grand Valley Laterals	2,199	220
Grand Valley Highline Laterals	5,172	517
Stubb Ditch	1,760	1,112
Keifer Extension Laterals	2,075	195
Palisade Irrigation District Laterals	6,242	624
CRBSCP, Paradox Valley Unit		
Multistage Centrifugal Pumps	2,500	132
Supervisory Control - Well No. 1	1,000	667
CRBSCP, Lower Gunnison Basin Stage 1		
Menoken On-Farm Improvements	2,077	1,277
Menoken Culinary System Improvements	3,391	1,666
CUP, Bonneville Unit (CRSPP)		
Indian Ford Pumps Purchase	4,562	1,792
Sixth Water Tunnel & Aqueduct	26,670	741
Dolores Project (CRSPP)		
Rocky Ford Laterals	5,364	206
Towaoc Canal - Reach III	13,000	4,875
Towaoc Laterals	6,368	3,021

1/ Includes non-Federal funds.

Project and Type of Work	TEC of Major Contracts	FY 1991 1/
CUP, Bonneville Unit Fish & Wildlife (CRSPP)		
Ute Waterfowl Development	1,670	982
CUP, Bonneville Unit Recreation (CRSPP)		
Recreation Facilities, Jordanelle	12,080	1,394
Central Arizona Project		
Artifact Repository Building	3,700	3,700
Salt River Siphon Modifications	3,000	3,000
Waddell - Supervisory Control System	2,000	100
Waddell - Relocate North Park Roads	3,000	3,000
Waddell - Phase2 West Abutment Grouting	2,000	400
Roosevelt Visitor Center/Museum	2,200	100
Modify Roosevelt Dam	86,016	14,760
Roosevelt PP - Furnish & Install Turbine	7,200	2,652

1/ Includes non-Federal funds.

BUREAU OF RECLAMATION
CONSTRUCTION PROGRAM

Method of Financing FY 1990 and FY 1991
(In thousands of dollars)

Project and State	Fiscal Year 1990				Fiscal Year 1991		
	Allocation of funds	Prior year funds applied	Cash advances/ reimbursements	Total obligations	Allocation of funds	Cash advances/ reimbursements	Total obligations
Preconstruction Activity:							
Colorado River Bridge Crossing, Arizona-Nevada	$300	$176	$0	$476	$1,000	$0	$1,000
Construction Activity:							
Boulder Canyon Project, Arizona-Nevada	$6,832	$2,095	$0	$8,927	$23,920	$0	$23,920
Central Arizona Project, Non-Indian California-New Mexico-Nevada-Utah	14,210	330	0	14,540	1,996	0	1,996
Central Valley Project, California							
Auburn-Folsom South Unit	1,676	0	0	1,676	1,500	0	1,500
Miscellaneous Project Programs	7,740	0	0	7,740	2,400	0	2,400
Sacramento River Division	6,236	0	0	6,236	3,866	0	3,866
San Felipe Division	2,564	0	0	2,564	1,715	0	1,715
San Luis Unit	5,352	567	179	6,098	2,911	2,072	4,983
Trinity River Restoration Program	10,740	0	0	10,740	7,362	0	7,362
Subtotal - Central Valley Project	$34,308	$567	$179	$35,054	$19,754	$2,072	$21,826
Columbia Basin Project, Washington							
Irrigation Facilities	4,422	0	0	4,422	3,900	0	3,900
Third Powerplant	10,997	533	0	11,530	3,348	0	3,348
Subtotal - Columbia Basin Project	$15,419	$533	$0	$15,952	$7,248	$0	$7,248
Headgate Rock Hydroelectric Project, Arizona-California	9,120	54	0	$9,174	8,872	0	8,872
Indian Water Rights Settlement Project, Various	5,916	0	0	5,916	11,177	0	11,177
Mni Wiconi Project	443	0	0	443	0	0	0
Pick-Sloan Missouri Basin Program:							
Belle Fourche Unit, South Dakota	6,645	0	0	6,645	8,024	0	8,024
Buffalo Bill Dam Modification, Wyoming	14,204	546	11,005	25,755	11,930	7,633	19,563

Method of Financing FY 1990 and FY 1991
(In thousands of dollars)

Project and State	Fiscal Year 1990				Fiscal Year 1991		
	Allocation of funds	Prior year funds applied	Cash advances/ reimbursements	Total obligations	Allocation of funds	Cash advances/ reimbursements	Total obligations
Pick-Sloan Missouri Basin Program: (continued)							
Garrison Diversion Unit, North Dakota-South Dakota..........1/..	26,580	0	0	26,580	0	0	0
North Loup Division, Nebraska......	21,028	170	0	21,198	21,646	0	21,646
O'Neill Unit, Nebraska.............	190	0	0	190	600	0	600
	--------	--------	--------	--------	--------	--------	--------
Subtotal - Pick-Sloan Missouri Basin Program..................	$68,647	$716	$11,005	$80,368	$42,200	$7,633	$49,833
San Luis Valley Project, Closed Basin Division, Colorado...........	7,426	13	0	7,439	6,810	4,895	11,705
Umatilla Project	641	0	445	1,086	0	0	0
WEB Rural Water Development Project, South Dakota.....................	12,704	0	0	12,704	945	0	945
Yakima Fish Passage and Protective Facilities, Washington.........2/..	394	545	136	1,075	0	0	0
Drainage and Minor Construction Program...........................	32,118	3,825	1,887	37,830	25,240	1,910	27,150
Rehabilitation and Betterment of Existing Projects.................	3,858	392	0	4,250	6,170	0	6,170
Safety of Dams Program...............	25,659	1,658	3,516	30,833	67,348	4,882	72,230
Science and Technology...............	11,405	2,002	4,177	17,584	13,303	1,351	14,654
	--------	--------	--------	--------	--------	--------	--------
Subtotal - Construction Activity.......	$249,100	$12,730	$21,345	$283,175	$234,983	$22,743	$257,726
Colorado River Basin Salinity Control Projects:							
Title I Division, Arizona..........	$16,193	$0	$0	$16,193	$14,295	$0	$14,295
Title II Division, Colorado							
Grand Valley Unit................	7,594	189	0	7,783	14,732	0	14,732
Las Vegas Wash Unit..............	49	0	0	49	0	0	0
Paradox Valley Unit..............	2,427	196	0	2,623	3,380	0	3,380
Lower Gunnison Basin Unit....	2,466	47	0	2,513	4,726	0	4,726
	--------	--------	--------	--------	--------	--------	--------
Subtotal - Colorado River Basin Salinity Control Projects............	$28,729	$432	$0	$29,161	$37,133	$0	$37,133

1/ A plan is being submitted to the Congress on the use of FY 1990 funds during FY 1990 and FY 1991 related to the temination of project activities.
2/ Moved to Drainage and Minor Construction in FY 1991.

Method of Financing FY 1990 and FY 1991
(In thousands of dollars)

Project and State	Fiscal Year 1990				Fiscal Year 1991		
	Allocation of funds	Prior year funds applied	Cash advances/ reimbursements	Total obligations	Allocation of funds	Cash advances/ reimbursements	Total obligations
Upper Colorado River Basin Fund:							
Preconstruction Activity:							
Central Utah Project, Uintah Unit, Utah........................	$49	$0	$0	$49	$50	$0	$50
Construction Activity:							
Animas-La Plata Project, Colorado-New Mexico........................	5,817	22	1,093	6,932	13,415	2,342	15,757
Bonneville Unit, Utah..............	98,754	8,658	0	107,412	81,773	0	81,773
Dolores Project, Colorado..........	38,730	102	0	38,832	49,050	0	49,050
Drainage and Minor Construction Program........................	371	400	0	771	775	0	775
Subtotal - Construction Activity.....	$143,672	$9,182	$1,093	$153,947	$145,013	$2,342	$147,355
Recreational and Fish and Wildlife Facilities:							
Fish and Wildlife..................	$21,871	$2,998	$0	$24,869	$15,132	$0	$15,132
Recreation.........................	8,645	34	0	8,679	11,836	0	11,836
Subtotal - R&F&WL...................	$30,516	$3,032	$0	$33,548	$26,968	$0	$26,968
Colorado River Basin Project							
Central Arizona Project, Arizona-Calif.-New Mexico-Nevada-Utah......	200,484	834	18,791	220,109	196,470	66,195	262,665
Subtotal - Colorado River Basin Project........................	$200,484	$834	$18,791	$220,109	$196,470	$66,195	$262,665
TOTAL SCHEDULED PROGRAM................	$652.850	$26,386	$41,229	$720,465	$641,617	$91,280	$732,897
General Reduction due to Slippage, Savings, and Carryover Balances....	0	0	0	0	(32,187)	0	(32,187)
TOTAL - CONSTRUCTION PROGRAM...........	$652,850	$26,386	$41,229	$720,465	$609,430	$91,280	$700,710

CENTRAL VALLEY PROJECT
Repayable Investment of the United States and Funds Returned to the treasury
September 30, 1989

Repayable Investment of the United States:		
Appropriation allocations for preconstruction, construction, and operation and maintenance	$ 3,408,255,995	
Transfers of cost or property (net)	335,494,234	
Interest accrued on investment.	281,584,795	
Interest during construction - capitalized.	56,867,189	
Total investment		$4,082,202,213
Less nonreimbursable investment:		
Capital costs	-349,667,230	
Expense	-98,414,418	
Total nonreimbursable investment		-448,081,648
Total repayable investment.		$3,634,120,565
Funds Returned to the Treasury:		
Power operations.	$ 672,970,953	
Water operations and miscellaneous.	636,088,925	
Total funds returned to the Treasury.		$1,309,059,878

PICK-SLOAN MISSOURI BASIN PROGRAM
Repayable Investment of the United States and Funds Returned to the Treasury
September 30, 1989

Repayable Investment of the United States:

Bureau of Reclamation 1/			
Appropriation allocations for preconstruction activities, construction, and operation and maintenance	2/	$3,254,000,000	
Transfers of cost or property (net)	3/	-3,000,000	
Interest during construction		104,000,000	
Interest accrued on investment		185,000,000	
Total investment		3,540,000,000	
Corps of Engineers (power function only):			
Cost of capital investment, including interest during construction		635,000,000	
Operation and maintenance		246,000,000	
Interest accrued on investment		442,000,000	
Total investment		1,323,000,000	
Less nonreimbursable investment:			
Capital costs		-844,000,000	
Expense		-31,000,000	
Total nonreimbursable investment		-875,000,000	
Total repayable investment			$3,988,000,000

Funds Returned to the Treasury:

Power Operations:		
Applicable to costs of the Bureau of Reclamation	$1,302,000,000	
Applicable to costs of the Corps of Engineers	980,000,000	
Water operations and miscellaneous	84,000,000	
Total funds returned to the Treasury		$2,366,000,000

1/ Includes Western Area Power Administration, Department of Energy.
2/ Excludes $88,841,233 transferred to other bureaus of the Department of the Interior.
3/ Excludes $74,629,483 investigations costs transferred from Pick-Sloan Missouri Basin Program to General Investigations expense.

Appropriation Title: Construction Program

SUMMARY OF PRECONSTRUCTION ACTIVITY PROGRAM, FY 1990 AND FY 1991

Project	FY 1990 Program	FY 1991 Program
Colorado River Bridge Crossing, Arizona-Nevada	$ 476,000	$ 1,000,000
TOTAL PROGRAM	$ 476,000	$ 1,000,000
METHOD OF FINANCING:		
Appropriation available or required	$ 300,000	$ 1,000,000
Application of Prior Year Funds	176,000	---
TOTAL FINANCING	$ 476,000	$ 1,000,000

Purpose of Program: During the Preconstruction Activity phase, work will consist of collecting final data, geologic work, material testing, and preparation of final designs and specifications. It also provides for negotiations with local interests leading to execution of repayment contracts prior to the initiation of construction. The preconstruction activity will finance detailed studies on certain authorized projects prior to the availability of construction funds.

Supporting statements for the preconstruction project in fiscal year 1991 appear on the next five pages.

REGION:
Lower Colorado

PROJECT DATA SHEET

PROJECT AND STATE: PRECONSTRUCTION ACTIVITY
COLORADO RIVER BRIDGE CROSSING, ARIZONA-NEVADA

Completion Date:	% Complete	Date
1995 1/	0	1/31/90

AUTHORIZATION:
Public Law 98-381, August 17, 1984

BENEFIT COST RATIOS

Based on Direct: Benefits	Based on Total: Benefits	Date
N/A 3/	N/A 3/	10/1/90

LAND CERTIFICATION:
None required

DEFINITE PLAN REPORT:
None Required 2/

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 9/	$ 45,000,000	Allotments to September 30, 1989	$ 377,402
Total Federal Obligations (Other) 4/	20,000,000	Allotments for FY 1990	300,000
Net Property and Other Transfers:			
Federal Participation			
Non-Federal Participation 5/	15,000,000	Allotments to Date	$ 677,402
Adjustment 6/	6,567,000	Allotments Required for FY 1991	1,000,000
Total to be Allocated	$ 86,567,000	Balance to Complete after FY 1991	$ 43,322,598

ALLOCATIONS 7/		REPAYMENT 8/		AMOUNTS PER ACRE	
Irrigation		Amount Repaid by:		Irrig. Invest/Acre $	Payment Capacity per
Power		Irrigators		Repayment of Investment per Acre:	Acre-Foot:
M&I Water		Power			Annual Charges:
Recreation		M&I Water		By Irrigators	O&M
F&WL		State-County		By Power Revenues	Construction
Flood Control		Local Interests			
		Deferred Use			
Safety	$ 86,567,000				
Other		Nonreimbursable			
Total	$ 86,567,000				

STATUS OF REPAYMENT CONTRACT: Repayment requirements have not been determined. 4/ 5/

STATUS OF NEPA COMPLIANCE: Environmental Assessment scheduled for completion February 1991. Environmental Impact Statement is scheduled for completion December 1991.

DESCRIPTION: The Colorado River Bridge Crossing is located approximately 1 mile downstream of Hoover Dam in Mohave County, Arizona, and Clark County, Nevada, and consists of Arizona and Nevada approach highways, a bridge spanning the Colorado River, and a visitor overview and viewpoint. The elimination of all through traffic and commercial vehicles from the crest of the dam would permanently relieve the hazardous traffic conditions that interfere with operation and maintenance of the dam, and would prevent accidents involving chemicals or hazardous waste that could result in loss of power generation and transmission. Serious safety problems for the workers and general public would be minimized. The driving distance between Las Vegas, Nevada, and Kingman, Arizona, would be reduced 1.4 miles, road grades reduced, and several dangerous curves eliminated.

PROJECT DATA SHEET - 2
COLORADO RIVER BRIDGE CROSSING, ARIZONA-NEVADA

OTHER INFORMATION: Funds to initiate preconstruction activities were included in the FY 1985 Budget Justifications for preconstruction work on the Boulder Canyon Project, and provided for in the FY 1985 Appropriation Act, Public Law 98-360. This project is a joint effort between the States of Arizona and Nevada, the Department of Transportation, and the Bureau of Reclamation.

Footnotes:

1/ Preconstruction activities will continue through 1991.

2/ Special Reports: Resume of Studies on Colorado River Crossing Below Hoover Dam (dated January 1972); 1983 Analysis of Colorado River Crossing Below Hoover Dam - Draft Report (dated June 1983).

3/ Determined as not applicable due to the prime justification of the project, which is the alleviation of safety hazards and to improve the public safety.

4/ Represents funds provided by the Department of Transportation for the construction of the bridge. Negotiations on a cost sharing agreement are continuing with the Department of Transportation.

5/ Represents funds provided by the States of Arizona and Nevada for the construction of the bridge. Negotiations on cost sharing agreements are continuing with the States.

6/ Represents interest during construction which has been included under the assumption that the project will be reimbursable.

7/ Not presented in the FY 1990 Budget Justifications.

8/ Repayment requirements will be determined after cost sharing agreements have been finalized.

9/ Construction of bridge is authorized under Public Law 98-381 which specified "This bridge shall not be a part of the Boulder Canyon Project and shall neither be funded nor repaid from the Colorado River Dam Fund or the Lower Colorado River Basin Fund." The Act did not specify an appropriation ceiling.

COLORADO RIVER BRIDGE CROSSING
ARIZONA-NEVADA

PHYSICAL DATA ON STRUCTURES - 3

Construction Program:

Nevada Approach Highway - Alternate U.S. Highway 93, 3 miles of relocated highway bypassing Hoover Dam.

Colorado River Bridge - Bridge spanning Colorado River in Black Canyon, approximately 1 mile downstream of Hoover Dam. Steel arch, approximately 1,100 feet long and 450 feet above the Colorado River.

Arizona Approach Highway - Alternate U.S. Highway 93, 1 mile of relocated highway bypassing Hoover Dam.

Visitor's View Point - Overview point of canyon and surrounding areas.

Appropriation Title: Construction Program

COLORADO RIVER BRIDGE CROSSING
ARIZONA-NEVADA

PRECONSTRUCTION ACTIVITY - 4

Summarized Financial Data:

Total estimated preconstruction program		$1,677,402
Actual obligations as of September 30, 1989	$ 201,402	
FY 1990 program	476,000 1/	
FY 1991 program	1,000,000	
Balance to complete after September 30, 1991	0 2/	

Justification: The bridge crossing, which would consist of Arizona and Nevada approach highways and a visitor overview and viewpoint, would eliminate all through traffic and commercial vehicles from using Hoover Dam as a crossing. This action would prevent accidents involving chemicals and hazardous waste that could result in loss of power generation and transmission. It would eliminate serious safety problems for the general public and the workers at the Dam. In addition, it would reduce road grades and several dangerous curves that have caused many traffic accidents.

The bridge crossing has support of the States of Nevada and Arizona, the Department of Transportation, and the general public.

FISCAL YEAR 1991

Work Proposed	Program
The program provides for completion of preconstruction activities which involves both the Arizona and Nevada approaches, the bridge, and visitor viewpoint.	$1,000,000

1/ Includes $176,000 prior year funds carried forward.
2/ Preconstruction activity is scheduled to be completed in September 1991.

COLO RIVER BRIDGE CROSSING
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1 * CONSTRUCTION PROGRAM						
2 ** NEVADA APPROACH HIGHWAY						
3		45,000,000	122,857	405,000	385,000	44,067,143
4 ** COLORADO RIVER BRIDGE						
5		20,000,000	43,967	46,000	315,000	19,595,033
6 ** ARIZONA APPROACH HIGHWAY						
7		* 8,000,000	17,951	15,000	200,000	7,767,049
8 ** VISITORS VIEW POINT						
9		7,000,000	16,633	10,000	100,000	6,873,367
10 * CONSTRUCTION PROGRAM		80,000,000	201,408	476,000	1,000,000	78,322,592
11 TOTAL PROGRAM COST		80,000,000	201,408	476,000	1,000,000	78,322,592
12 OTHER CONSOL. EXPEND & CREDIT			6-			6
13 TOTAL EXPENDITURES		80,000,000	201,402	476,000	1,000,000	78,322,598
14 NONFEDERAL CASH CONTRIBUTIONS		15,000,000-				15,000,000-
15 TOTAL FEDERAL EXPENDITURES		65,000,000	201,402	476,000	1,000,000	63,322,598
16 OTHER FEDERAL AGENCY CONTRIB.		20,000,000-				20,000,000-
17 TOTAL RECLAMATION EXPENDITURES		45,000,000	201,402	476,000	1,000,000	43,322,598
18 TOTAL RECLAMATION OBLIGATIONS		45,000,000	201,402	476,000	1,000,000	43,322,598
19 TOTAL FUNDED OBLIGATIONS		45,000,000	201,402	476,000	1,000,000	43,322,598
1 METHOD OF FINANCING						
2 APPLICATION OF PRIOR YEAR FUND				176,000		
3 APPROPRIATION AVAILABLE & REQD				300,000	1,000,000	43,322,598
4 OTHER FEDERAL PARTICIPATION						20,000,000
5 NONFEDERAL PARTICIPATION						15,000,000

REGION:
Lower Colorado

PROJECT DATA SHEET

PROJECT AND STATE:
INDIAN WATER RIGHTS SETTLEMENT PROJECTS, VARIOUS

AUTHORIZATION:
Public Law 97-293, October 12, 1982 and
Snyder Act of November 2, 1921

LAND CERTIFICATION: April 16,1973: **DEFINITE PLAN REPORT:**
Supp. scheduled March 1990 : To be completed as required.

Completion Date	% Complete	Date
1/	2	1/31/90

BENEFIT COST RATIO

Based on Direct Benefits	Based on Total Benefits	Date
NA	NA 2/	10/1/90

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 5/	$27,553,000	Allotments to September 30, 1989	$
Total Federal Obligations (Other)		Allotments for FY 1990	5,916,000
Net Property and Other Transfers:			
Federal Participation			
Non-Federal Participation			
Adjustment		Allotments to Date	5,916,000
Total to be Allocated	$27,553,000	Allotments Required for FY 1991	11,177,000
		Balance to Complete after FY 1991	$ 10,460,000

ALLOCATIONS 3/		REPAYMENT		AMOUNTS PER ACRE		
Irrigation	$25,753,000	Amount Repaid by:		Irrig. Invest/Acre	$2,195	Payment Capacity per acre
Power		Irrigators		Repayment of Investment per Acre:		Annual Charges:
M&I Water		Power		By Irrigators		O&M
Recreation		M&I Water		By Power Revenues		Construction
F&WL				By M&I Water Users		
Flood Control						
Other	1,800,000	Nonreimbursable 4/	$27,553,000	Indian Irrigation	2,195	
Total	$27,553,000	Total	$27,553,000			Total

STATUS OF REPAYMENT CONTRACT: Repayment contract not required under the Southern Arizona Water Rights Settlement Act.

STATUS OF NEPA COMPLIANCE: Tohono O'Odham Nation, San Xavier District - Draft Environmental Impact Statement (EIS) filed October 26, 1988 - Final filed November 2, 1989. Schuk Toak District - Finding of No Significant Impact (FONSI) completed March 21, 1989.

DESCRIPTION: The Indian Water Rights Settlement Projects include all work funded by the Bureau of Reclamation for the construction of various Indian water rights settlement acts facilities. The only settlement act currently under construction is the Southern Arizona Water Rights Settlement Act of 1982. Facilities for the Southern Arizona Water Rights Settlement Act are located in Pinal and Pima Counties of Arizona. These facilities will deliver 66,000 acre-feet of water annually to the Tohono O'Odham Nation. It will provide a permanent water supply to approximately 11,730 acres of land.

PROJECT DATA SHEET - 2
INDIAN WATER RIGHTS SETTLEMENT PROJECTS, ARIZONA

OTHER INFORMATION: Funds to initiate planning and preconstruction work on the Southern Arizona Water Rights Settlement Act were provided by the Bureau of Indian Affairs in FY 1983. Construction is scheduled to begin in FY 1990.

Footnotes:

1/ Southern Arizona Water Rights Settlement Act - October 12, 1982. The Act requires delivery of water to the Tohono O'Odham Nation to begin prior to October 12, 1992, 10 years after passage of the act.

2/ Benefit-cost ratios not required. Public Law 97-293, Title III, authorized this work to settle the water rights claims of the San Xavier and Schuk Toak Districts of the Tohono O'Odham Nation.

3/ The methodology of cost allocations has not been modified. An explanation of the changes in allocation between FY 1990 and FY 1991 is as follows:

Allocation	FY 1990 Estimate	FY 1991 Estimate
Irrigation	$22,793,000	$25,753,000
Other	---	1,800,000
Total	$22,793,000	$27,553,000

Explanation	Amount of Change
New features	$+3,040,000
Revised estimates	+1,720,000
Total	$+4,760,000

The allocations for FY 1991 have been revised to incorporate changes. The following is a summary of impacts on individual allocations:

Irrigation increased $2,960,000 due to revisions in costs to reflect current designs and to account for the Tohono O'Odham Nation's administrative costs.

Other increased $1,800,000 for Reclamation participation in future Indian water rights settlement negotiations where Reclamation's activities are not part of an existing project authorization.

4/ All costs associated with delivery of water to the fields are nonreimbursable under the Southern Arizona Water Rights Settlement Act. All costs for negotiation of future water settlements are assumed to be nonreimbursable.

5/ The Southern Arizona Water Rights Settlement Act does not provide an overall appropriation ceiling; however, Section 2303 (a) (3) contains an appropriation authorization of $3,500,000 plus or minus indexing for those features of the project which are not authorized to be constructed under any other provision of law. The appropriations authorized are $4,141,000. The remainder of the Schuk Toak District new farm will be constructed under provision of the Snyder Act which does not specify an appropriation ceiling.

INDIAN WATER RIGHTS SETTLEMENT PROJECTS, ARIZONA

PHYSICAL DATA ON STRUCTURES - 4

CONSTRUCTION PROGRAM

San Xavier Existing Farm 1/

Well Field
Wells - 3 Capacity - 5,000 gallons per minute

Main Delivery Pipeline
Length - 5.7 miles Diameter - 24 inches

Canal
Length - 5.9 miles Capacity - 20 to 15 cubic feet per second Bottom width - 2.0 to 1.0 feet Water Depth - 30 inches

Farm ditches
Length - 9.3 miles Capacity - 7 cubic feet per second Bottom width - 1.0 feet Water Depth - 28 inches

San Xavier New Farm

Farm ditches
Length - 34.1 miles Capacity - 7 cubic feet per second Bottom width - 1.0 feet Water Depth - 28 inches

Linear move sprinklers and a bubbler irrigation system

Schuk Toak New Farm 1/

Farm ditches
Length - 13.8 miles Capacity - 16 cubic feet per second Bottom width - 2.0 feet Water Depth - 28 inches

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1/ Physical data has been revised to reflect current designs.

Appropriation Title: Construction Program

INDIAN WATER RIGHTS SETTLEMENT PROJECTS, ARIZONA - 5

FISCAL YEAR 1991

Work Proposed	Program
Southern Arizona Water Rights Settlement Act - A contract will be awarded for the construction of the San Xavier District New Farm. Construction will continue on the San Xavier Existing Farm and the Schuk Toak District New Farm. Construction management activities will continue.	$ 10,877,000
Future Indian Water Rights Settlement Acts - Participation in studies and negotiations with Indian communities on future water rights settlements will begin.	300,000
TOTAL	$ 11,177,000

INDIAN WTR RIGHTS SETLMT PROJS

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1 * CONSTRUCTION PROGRAM						
2 ** SOUTHERN AZ WATER RIGHT SETTLE 3		25,753,000		5,916,000	10,877,000	8,960,000
4 ** FUTURE WATER RIGHTS SETTLE ACT 5		1,800,000			300,000	1,500,000
6 * CONSTRUCTION PROGRAM		27,553,000		5,916,000	11,177,000	10,460,000
7 TOTAL PROGRAM COST		27,553,000		5,916,000	11,177,000	10,460,000
8 TOTAL EXPENDITURES		27,553,000		5,916,000	11,177,000	10,460,000
9 TOTAL FEDERAL EXPENDITURES		27,553,000		5,916,000	11,177,000	10,460,000
10 TOTAL RECLAMATION EXPENDITURES		27,553,000		5,916,000	11,177,000	10,460,000
11 TOTAL RECLAMATION OBLIGATIONS		27,553,000		5,916,000	11,177,000	10,460,000
12 TOTAL FUNDED OBLIGATIONS		27,553,000		5,916,000	11,177,000	10,460,000
13 METHOD OF FINANCING						
14 APPROPRIATION AVAILABLE & REQD				5,916,000	11,177,000	10,460,000

REGION:
Lower Colorado

PROJECT DATA SHEET

PROJECT AND STATE:
HEADGATE ROCK HYDROELECTRIC PROJECT, ARIZONA

Completion Date	% Complete	Date
1992 1/	58	1/31/90

AUTHORIZATION:
Snyder Act of November 2, 1921

BENEFIT COST RATIOS		
Based on Direct: Benefits	Based on Total: Benefits	Date
1.5 3/	1.5 3/	10/1/90

LAND CERTIFICATION: None required

DEFINITE PLAN REPORT: 2/

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 8/	$ 52,000,000	Allotments to September 30, 1989	$ 29,369,079
Total Federal Obligations (Other)		Allotments for FY 1990	9,120,000
Net Property and Other Transfers:			
Federal Participation 4/	1,387,000		
Non-Federal Participation		Allotments to Date	$ 38,489,079
Adjustment 5/	18,353,000	Allotments Required for FY 1991	8,872,000
Total to be Allocated	$ 71,740,000	Balance to Complete after FY 1991	$ 4,638,921

ALLOCATIONS 6/		REPAYMENT		AMOUNTS PER ACRE	
Irrigation	$ 14,041,000	Amount Repaid by:		Irrig. Invest/Acre $	Payment Capacity per
Power	57,699,000	Irrigators		Repayment of Invest-	Acre-Foot: $ to $
M&I Water		Power 7/	$ 71,740,000	ment per Acre:	Annual Charges:
Recreation		M&I Water		By Irrigators	O&M
F&WL		State-County		By Power Revenues	Construction
Flood Control		Local Interests			
Navigation		Deferred Use			
State-County					
Other		Nonreimbursable			
Total	$ 71,740,000	Total	$ 71,740,000		

STATUS OF REPAYMENT CONTRACT: Reclamation will transfer the plant to the Bureau of Indian Affairs upon the completion of construction. Requirement for repayment will be determined by the Bureau of Indian Affairs.

STATUS OF NEPA COMPLIANCE: Finding of No Significant Impact was filed on August 22, 1980.

DESCRIPTION: This project is located at Headgate Rock Dam on the Colorado River between La Paz County, Arizona, and San Bernardino County, California, near Parker, Arizona. The project consists of constructing a powerplant and installing three turbine-generating units and associated transmission facilities at the existing dam. The project will provide for a total of 19,500 kilowatts of capacity and an annual average production of 86.5 million kilowatt-hours of energy for irrigation and pumping and other uses on the Colorado River Indian Reservation.

PROJECT DATA SHEET - 2
HEADGATE ROCK HYDROELECTRIC PROJECT, ARIZONA

OTHER INFORMATION: Funds to start preconstruction activities were appropriated to the Bureau of Indian Affairs (BIA) in FY 1980. Funds to initiate construction were appropriated in FY 1985 Supplemental Appropriations Act (Public Law 99-88).

It has been determined that this project is being constructed under the Snyder Act of November 2, 1921, 42 Stat. 208. The project is being built in order to promote Indian self-determination.

Headgate Rock Dam was authorized under the River and Harbors Act of 1935. Construction was initiated by BIA in 1938. The dam was completed in 1941 to provide permanent diversion facilities for irrigation of up to 100,000 acres of land in Arizona on the Colorado River Indian Reservation. The powerplant is considered to be an extension of the Colorado River Indian Irrigation Project. Designs and specifications have been completed, and the cost of the work reimbursed to Reclamation by BIA under a Memorandum of Understanding dated May 7, 1980. Subsequently, the memorandum was superceded by Intra-Agency Agreement No. 6-AA-30-04110, dated July 15, 1986, that established construction and funding responsibilities. BIA requested Reclamation to assume operation and maintenance responsibility for the facility, with funding advanced by BIA, and Interagency Agreement No. H50C14IA8210 was executed March 28, 1988.

Footnotes:

1/ The project is scheduled to be operational in 1992.

2/ An Advanced Planning Report was submitted to and approved by the Bureau of Indian Affairs in June 1980. This report will serve as a Definite Plan Report.

3/ The benefit cost ratio remained at 1.5 as presented in the FY 1990 Budget Justifications. The ratios were computed using the interest rate of 9.50 percent.

4/ Represents funds transferred to Reclamation by the Bureau of Indian Affairs for design and specifications prior to Reclamation's decision to seek funding for construction of this project.

5/ Represents reimbursable interest during construction of $18,353,000 for power. The use of an erroneous interest rate in previous years has resulted in an increase of $7,098,000 in interest during construction.

Footnotes: (continued)

6/ The methodology of cost allocation has not been modified. An explanation of the changes in allocations between FY 1990 and FY 1991 is as follows:

Allocation	FY 1990 Estimate	FY 1991 Estimate
Irrigation	$ 12,962,000	$ 14,041,000
Power	48,180,000	57,699,000
Total	$ 61,142,000	$ 71,740,000

Explanation	Amount of Change
Interest during construction	+7,098,000
Revised cost estimate for powerplant	+3,500,000
Total	$+10,598,000

The allocations for FY 1991 have been revised to incorporate the cost estimate changes. The following is a summary of impacts on individual allocations:

Irrigation increase of $1,079,000 due to revised cost estimates for the powerplant contract.

Power increase of $9,519,00 due to revised cost estimates of $2,421,000 for the powerplant contract and an increase of $7,098,000 in interest during construction.

7/ Reclamation will transfer the plant to the Bureau of Indian Affairs upon completion of construction. Requirement for repayment will be determined by the Bureau of Indian Affairs.

8/ This project is authorized under the provisions of the Snyder Act which does not specify an appropriation ceiling.

HEADGATE ROCK HYDROELECTRIC PROJECT, ARIZONA

PHYSICAL DATA ON STRUCTURES - 4

CONSTRUCTION PROGRAM:

Headgate Rock Dam Powerplant

Three Generating Units - 6,500 kilowatts each

Transmission Line and Switchyard Additions

69-kilovolt Transmission Line - 0.6 mile

FISCAL YEAR 1991

Work Proposed	Program
Headgate Rock Dam Powerplant. - The contract for construction of the powerplant will continue. The contract for furnishing turbines, generators, and governors will complete.	$ 7,984,000
Headgate Rock Transmission Facilities. - The contract for construction of the transmission lines will continue.	924,000
Service Facilities, Depreciation, and Salvage.	-36,000
TOTAL	$ 8,872,000

HEADGATE ROCK HYDROELEC PROJ
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

	PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1	· CONSTRUCTION PROGRAM						
2 3	·· HEADGATE ROCK DAM POWERPLANT		49,500,000	26,397,369	11,190,048	7,984,000	3,928,583
4 5	·· TRANSMISSION FACILITIES		2,552,837	351,709	547,890	924,000	729,238
6 7	·· SERVICE FACIL/DEPRE/SALVAGE			81,317	5,890-	36,000-	39,427-
8	· CONSTRUCTION PROGRAM		52,052,837	26,830,395	11,732,048	8,872,000	4,618,394
9 10	· OTHER PROJECT COSTS		1,387,000	1,387,000			
11	TOTAL PROGRAM COST		53,439,837	28,217,395	11,732,048	8,872,000	4,618,394
12	OTHER CONSOL. EXPEND & CREDIT		52,837-	73,364-			20,527
13	TOTAL EXPENDITURES		53,387,000	28,144,031	11,732,048	8,872,000	4,638,921
14	TOTAL FEDERAL EXPENDITURES		53,387,000	28,144,031	11,732,048	8,872,000	4,638,921
15	OTHER FEDERAL AGENCY CONTRIB.		1,387,000-	1,387,000-			
16	TOTAL RECLAMATION EXPENDITURES		52,000,000	26,757,031	11,732,048	8,872,000	4,638,921
17	UNDELIVERED ORDERS			2,558,048	2,558,048-		
18	TOTAL RECLAMATION OBLIGATIONS		52,000,000	29,315,079	9,174,000	8,872,000	4,638,921
19	TOTAL FUNDED OBLIGATIONS		52,000,000	29,315,079	9,174,000	8,872,000	4,638,921
1	METHOD OF FINANCING						
2	APPLICATION OF PRIOR YEAR FUND				54,000		
3	APPROPRIATION AVAILABLE & REQD				9,120,000	8,872,000	4,638,921

REGION:
Lower Colorado

PROJECT DATA SHEET

PROJECT AND STATE:
COLORADO RIVER BASIN SALINITY CONTROL PROJECTS-TITLE I DIVISION ARIZONA-CALIFORNIA

Completion Date	% Complete	Date
1991 1/	76	1/31/90

AUTHORIZATION:
Public Law 93-320, June 24, 1974, and Public Law 96-336, September 4, 1980

BENEFIT COST RATIOS

Based on Direct Benefits	Based on Total Benefits	Date
2/	2/	10/1/90

LAND CERTIFICATION:
None required

DEFINITE PLAN REPORT:
3/

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 10/	$ 481,536,000
Total Federal Obligations (Other)	
Net Property and Other Transfers:	
Federal Participation	145,000
Non-Federal Participation	
Adjustment	
Total to be Allocated	$ 481,681,000

Allotments to September 30, 1989	$ 352,393,723
Allotments for FY 1990	16,193,000
Allotments to Date	$ 368,586,723
Allotments Required for FY 1991	14,295,000
Balance to Complete after FY 1991	$ 98,654,277

ALLOCATIONS 4/	
Irrigation	$ 45,938,000
Power	
M&I Water	
Recreation	
F&WL	
Flood Control	
Mexican Treaty	435,579,000
Other 5/	164,000
Total	$ 481,681,000

REPAYMENT	
Amount Repaid by:	
Irrigators 6/	$ 45,938,000
Power	
M&I Water	
State-County	
Local Interests	
Deferred Use	
Nonreimbursable 7/	435,743,000
Total	$ 481,681,000

AMOUNTS PER ACRE

Irrig. Invest/Acre	$585
Repayment of Investment per Acre: 9/	
By Irrigators	$585
By Power Revenues	

Payment Capacity per Acre-Foot:	to
Annual Charges:	
O&M	
Construction	

STATUS OF REPAYMENT CONTRACT: Repayment contract with the Coachella Valley Water District for lining of the Coachella Canal was executed March 14, 1978, and validated June 30, 1978. 6/ 8/

STATUS OF NEPA COMPLIANCE: Title I - Projectwide final environmental impact statement was filed with the Council on Environmental Quality on June 18, 1975.

DESCRIPTION: The project is located in southwestern Arizona in Yuma County and in southeastern California in Imperial County. The project is for the enhancement and protection of the quality of water available in the Colorado River for the United States and the Republic of Mexico and to comply with the requirements of Minute No. 242 and obligations under the agreement with Mexico of August 30, 1973. The project will provide fish and wildlife mitigation measures.

PROJECT DATA SHEET - 2
COLORADO RIVER BASIN SALINITY CONTROL PROJECTS - TITLE I DIVISION
ARIZONA-CALIFORNIA

OTHER INFORMATION: Funds to initiate construction were appropriated in FY 1975.

Footnotes:

1/ Desalting Complex Unit- 73 million gallons per day completed in FY 1991-balance to be completed as required.
Coachella Canal Unit - FY 1984
Protective and Regulatory Pumping Unit - 14 wells and associated features - FY 1979
7 wells and associated features - FY 1984
14 wells - balance to complete - FY 1996

At the present time, it has not been determined when the future well program will be needed.

2/ Assessment of the full beneficial impact of improving water quality as a result of this authorized project has not been made. Agreements with the Mexican Government concerning salinity control in the Colorado River and Public Law 93-320 authorizing Title I and Title II activities are based upon social and political justifications.

3/ A Status Report on the Desalting Complex Unit was submitted in November 1977, the Definite Plan Report for the Coachella Canal Unit was approved May 30, 1979, and the Protective and Regulatory Pumping Unit Definite Plan Report was approved May 5, 1980. A special report on Reject Stream Replacement Studies was approved by the Commissioner on June 24, 1980.

PROJECT DATA SHEET - 3
COLORADO RIVER BASIN SALINITY CONTROL PROJECT - TITLE I DIVISION
ARIZONA-CALIFORNIA

Footnotes: - (continued)

4/ The methodology of cost allocation has not been modified. An explanation of the changes in allocations between FY 1990 and FY 1991 is as follows:

Allocation	FY 1990 Estimate	FY 1991 Estimate
Irrigation	$ 45,938,000	$ 45,938,000
Mexican Treaty	436,825,000	435,579,000
Other	164,000	164,000
Total	$ 482,927,000	$ 481,681,000

Explanation	Amount of Change
Revised contract estimates to complete Desalting Complex Unit and Protective Pumping Unit	+ 6,367,000
Indexed land costs	- 1,051,000
Noncontract costs	- 5,650,000
Minor contracts	- 912,000
Total	$ - 1,246,000

5/ Nonreimbursable preauthorization investigation costs (Public Law 92-149).

6/ A repayment contract with Coachella Valley Water District was executed March 14, 1978, and validated June 30, 1978. Repayment of construction costs will be nonreimbursable during the period from completion of a new Coachella Canal to the end of the first year that mainstream Colorado River water is delivered to California in an amount less than the sum of quantities requested by California under Section 5 of the Boulder Canyon Project Act. This will probably occur in 1990 or 1991, as Central Arizona Project diverts Arizona's share of mainstream Colorado River water.

PROJECT DATA SHEET - 4
COLORADO RIVER BASIN SALINITY CONTROL PROJECTS - TITLE I DIVISION
ARIZONA-CALIFORNIA

Footnotes: - (continued)

7/ Includes $435,579,000 Mexican Treaty Measures and $164,000 for nonreimbursable preauthorization investigation costs. (Public Law 92-149).

8/ Cost of the Desalting Complex is nonreimbursable except for cost associated with other beneficiaries. A determination is to be made after data have been finalized. Costs for the Coachella Canal replacement will be shared by the United States and the Coachella Valley Water District. Distribution will be on the basis of the benefit of water savings accruing to the United States and will be finalized when studies are completed. Costs associated with the Protective and Regulatory Pumping, including delivery of water to Mexico, will be nonreimbursable, except for water used in the United States.

9/ Based on 78,530 acres of agricultural land in the Coachella Valley taken from 1989 crop census.

10/ Appropriations authorized are $462,589,000 (October 1990). The comparable Federal obligation is $481,536,000 which does not exceed the appropriation ceiling by more than 5 percent nor the amount of contingencies included in the obligation. Estimating data are not firm enough to determine if additional appropriation ceiling is necessary. The situation will be analyzed periodically as new and more precise data become available to determine the impact of the changes.

PHYSICAL DATA ON STRUCTURES - 5
COLORADO RIVER BASIN SALINITY CONTROL PROJECTS - TITLE I DIVISION
ARIZONA-CALIFORNIA

CONSTRUCTION PROGRAM:

Desalting Complex Unit

Yuma Desalting Plant:	**Capacity:**
Type - Membrane (reverse osmosis)	96 Million Gallons per Day
Switchyard:	**Capacity:**
Yuma Desalting Plant site	62.5 Kilovolt Amperes
Transmission Lines:	**Capacity:**
Length - 3.8 Miles	161 Kilovolts
Bypass Drain:	**Capacity:**
Length - 16 Miles in United States 37 Miles in Mexico Bottom Width - 12 Feet Water Depth - 6.06 Feet	353 Cubic Feet per Second
Main Outlet Drain Extension Siphon:	**Capacity:**
Length - 3,075 Feet Diameter - 10 Feet	353 Cubic Feet per Second

PHYSICAL DATA ON STRUCTURES - 6
COLORADO RIVER BASIN SALINITY CONTROL PROJECTS - TITLE I DIVISION
ARIZONA-CALIFORNIA

Coachella Canal Unit

Canal Replacement:

Length - 49 Miles
Bottom Width - 16 Feet
Water Depth - 10.42 Feet to Station 861+20
12.34 Feet to the end

Capacity:

1,500 Cubic Feet per Second

Protective and Regulatory Pumping Unit

Wells:

35 Units
Depth - 600 feet

Capacity:

130,000 Acre-feet per Year
Total - All Units

Conveyance System:

Open Channel Length - 5.9 Miles
Bottom Width - 4 to 6 Feet
Water depth - 2.8 to 3.8 Feet

Closed Pipeline Length - 12.8 Miles
Diameter - 27 to 72 Inches

Capacity:

7.5 to 300 Cubic Feet per Second

Transmission Lines:

Length - 18.7 Miles
20.0 Miles

Capacity:

34.5 Kilovolts
69 kilovolts

Land and Rights

Quantity - 43,511 Acres
Total Estimated Cost - $ 25,448,753 1/
Cost per acre - $585
Acquisition - 74 percent complete as of September 30, 1989

1/ Decrease is due to indexing land costs

Appropriation Title: Construction Program

COLORADO RIVER BASIN SALINITY CONTROL PROJECT - TITLE I DIVISION
ARIZONA-CALIFORNIA - 7

FISCAL YEAR 1991

Work Proposed	Program
Desalting Complex Unit. - Contracts will be awarded for the Biocide Handling Facility, Storage Facilities and Clearwell Coating. Work will continue on desalting plant completion and furnishing plant equipment.	$14,085,000
Fish and Wildlife Facilities. - Work will be completed on the Finney-Ramer Habitat Restoration contract in California.	210,000
TOTAL	$14,295,000

RZ40 CRBSCP, (TITLE 1, DIVISION) PAGE 1

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1 • COMPLETED WORK						
2		67,252,266	67,252,266			
3 • CONSTRUCTION PROGRAM						
4 •• DESALTING COMPLEX UNIT						
5		368,668,000	250,962,367	16,680,892	14,084,642	86,940,099
6 •• PROT AND REGULATORY PUMP UNIT						
7		31,704,000	19,571,448			12,132,552
8 •• FISH AND WILDLIFE FACILITIES						
9		11,735,000	11,068,538	456,104	210,358	
10 •• SERVICE FACILITIES,DEP AND SAL						
11			792,007-			792,007
12 • CONSTRUCTION PROGRAM		412,107,000	280,810,346	17,136,996	14,295,000	99,864,658
13 • OTHER PROJECT COSTS						
14		2,321,734	2,321,734			
15 TOTAL PROGRAM COST		481,681,000	350,384,346	17,136,996	14,295,000	99,864,658
16 OTHER CONSOL. EXPEND & CREDIT		145,000-	1,065,381			1,210,381-
17 TOTAL EXPENDITURES		481,536,000	351,449,727	17,136,996	14,295,000	98,654,277
18 TOTAL FEDERAL EXPENDITURES		481,536,000	351,449,727	17,136,996	14,295,000	98,654,277
19 TOTAL RECLAMATION EXPENDITURES		481,536,000	351,449,727	17,136,996	14,295,000	98,654,277
20 UNDELIVERED ORDERS			943,996	943,996-		
21 TOTAL RECLAMATION OBLIGATIONS		481,536,000	352,393,723	16,193,000	14,295,000	98,654,277
22 TOTAL FUNDED OBLIGATIONS		481,536,000	352,393,723	16,193,000	14,295,000	98,654,277
1 METHOD OF FINANCING						
2 APPROPRIATION AVAILABLE & REQD				16,193,000	14,295,000	98,654,277

PROJECT DATA SHEET

REGION:
LOWER COLORADO

PROJECT AND STATE:
BOULDER CANYON PROJECT, ARIZONA-NEVADA

Completion Date:	% Complete	Date
1993 1/	14	1/31/90

AUTHORIZATION: Public Law 70-642, December 21, 1928; Public Law 76-756, July 19, 1940; Public Law 98-181, November 30, 1983; Public Law 98-381, August 17, 1984; and Public Law 99-88, August 5, 1985

BENEFIT COST RATIOS

Based on Direct: Benefits	Based on Total: Benefits	Date
2/	2/	10/1/90

LAND CERTIFICATION: None required

DEFINITE PLAN REPORT: 3/

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 1/	$ 65,000,000
Total Federal Obligations (Other)	
Net Property and Other Transfers:	
Federal Participation	
Non-Federal Participation	
Adjustment 4/	11,113,000
Total to be Allocated	$ 76,113,000

Allotments to September 30, 1989	$ 10,993,512
Allotments for FY 1990	6,832,000
Allotments to Date	$ 17,825,512
Allotments Required for FY 1991	23,920,000
Balance to Complete after FY 1991	$ 23,254,488

ALLOCATIONS 5/	
Irrigation	
Power	$ 76,113,000
M&I Water	
Recreation	
F&WL	
Flood Control	
Other	
Total	$ 76,113,000

REPAYMENT	
Amount Repaid by:	
Irrigators	
Power 6/	$ 76,113,000
M&I Water	
Local Interests	
Deferred Use	
Nonreimbursable	
Total	$ 76,113,000

AMOUNTS PER ACRE

Irrig. Invest/Acre $
Repayment of Investment per Acre:
By Irrigators
By Power Revenues

Payment Capacity per Acre-Foot: $ to $
Annual Charges:
O&M
Construction

STATUS OF REPAYMENT CONTRACT: Repayment by customers under power contracts.

STATUS OF NEPA COMPLIANCE: Facility Improvements - A Finding of No Significant Impact was filed on September 20, 1979.

DESCRIPTION: The project is located at Hoover Dam on the Colorado River between Clark County, Nevada and Mohave County, Arizona. Features of the Facility Improvements include construction of a multi-story parking structure west of the Nevada abutment, and a visitor service facility. The parking facility will consist of 420 spaces, including 20 for bus parking, and increase available parking by 263 spaces. The visitor facility will provide two additional elevators and adits for improved control over public tours and improved safety for visitors and employees.

PROJECT DATA SHEET - 2
BOULDER CANYON PROJECT
ARIZONA-NEVADA

OTHER INFORMATION: Authorization to initiate preconstruction activities in advance of project authorization, within available construction funds, was provided in the Conference Report of the 1984 Supplemental Appropriations Act (Public Law 98-181). Funds to initiate construction were provided in the FY 1985 Supplemental Appropriations Act (Public Law 99-88). Public Law 98-381 provides that this project will have 100 percent cost sharing through repayment, at current interest rates, by users.

Footnotes:

1/ Completion date changed to 1993 due to delays in awarding contracts.

2/ No benefit-cost ratio is calculated for the Facility Improvements since the benefits are intangible.

3/ A special report on Facilitating Traffic Flow, Alleviating Safety Hazards, and Expediting Access (Facility Improvement Program) was submitted in September 1977.

4/ Represents estimated reimbursable interest during construction. The Hoover Power Plant Act (Public Law 98-381) requires the use of an annualized interest rate that is computed each year by the Department of the Treasury. Current interest rate is 9.330 percent.

5/ The methodology of cost allocation has not been modified. The increase of $10,108,000 is due to an increase in the estimate for the elevator shaft, the roadway realignment, and subsequent cost increases from the delays to the parking facilities and visitor's facilities.

6/ The amount to be repaid by Power provided under contracts administered by the Western Area Power Administration.

7/ Appropriations authorized are $89,641,000 (October 1990). This authorization is adequate to cover this project as currently proposed. The authorized appropriation ceiling does not include completed works financed under original project authorization.

PHYSICAL DATA ON STRUCTURES - 3

CONSTRUCTION PROGRAM:

Facility Improvements

Elevators and Shaft, Tour Galleries, and Visitors' Facilities

Elevators:
  Number of Elevators - 2
  Number of Passengers - 50
  Capacity - 10,000 pounds

Tour Galleries:
  Number - 2
  Length - 300 feet (est.)
Visitors' Facilities:
  Square Feet - 36,200

Shaft:
  Number - 1
  Length - 550 feet

Parking and Roadway Facilities

Parking:
  Number of Areas - 1
  Total Parking Spaces - 420

Relocations 1/

Roadway:
  Realignment - 0.2 mile Transmission
Towers:
  Relocate - 2

1/ Located on Federally-owned land.

Appropriation Title: Construction Program
Construction and Rehabilitation

BOULDER CANYON PROJECT
ARIZONA-NEVADA - 4

FISCAL YEAR 1991

Work Proposed	Program
Elevator Shaft/Tour Galleries - Contract will be completed.	$ 13,899,385
Roadway Realignment - Contract will be completed.	49,223
Parking Facilities - Contract for the parking facilities will be awarded.	4,400,000
Visitor Facilities - Contract for the visitor facilities will be awarded.	5,571,392
TOTAL	$ 23,920,000

BOULDER CANYON PROJECT
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1 * CONSTRUCTION PROGRAM						
2 ** ELEVATOR SHAFT/TOUR GALLERIES						
3		19,850,000	1,650,615	4,300,000	13,899,385	
4 ** ROADWAY REALIGNMENT						
5		6,910,000	2,685,777	4,175,000	49,223	
6 ** TRANSMISSION LINES/TOWERS						
7		1,258,020	1,258,020			
8 ** PARKING FACILITIES						
9		15,400,000	1,374,456	153,153	4,400,000	9,472,391
10 ** VISITOR FACILITIES						
11		21,596,777	1,897,214	329,400	5,571,392	13,798,771
12 * CONSTRUCTION PROGRAM		65,014,797	8,866,082	8,957,553	23,920,000	23,271,182
13 TOTAL PROGRAM COST		65,014,797	8,866,082	8,957,553	23,920,000	23,271,182
14 OTHER CONSOL. EXPEND & CREDIT		14,797-	1,877			16,674-
15 TOTAL EXPENDITURES		65,000,000	8,867,959	8,957,553	23,920,000	23,254,488
16 TOTAL FEDERAL EXPENDITURES		65,000,000	8,867,959	8,957,553	23,920,000	23,254,488
17 TOTAL RECLAMATION EXPENDITURES		65,000,000	8,867,959	8,957,553	23,920,000	23,254,488
18 UNDELIVERED ORDERS			30,553	30,553-		
19 TOTAL RECLAMATION OBLIGATIONS		65,000,000	8,898,512	8,927,000	23,920,000	23,254,488
20 TOTAL FUNDED OBLIGATIONS		65,000,000	8,898,512	8,927,000	23,920,000	23,254,488
1 METHOD OF FINANCING						
2 APPLICATION OF PRIOR YEAR FUND				2,095,000		
3 APPROPRIATION AVAILABLE & REQD				6,832,000	23,920,000	23,254,488

REGION:
Mid-Pacific

PROJECT DATA SHEET

PROJECT AND STATE: CENTRAL VALLEY PROJECT, CALIFORNIA	Completion Date 1/	% Complete 1/ 77	Date 1/31/90
AUTHORIZATION: Finding of Feasibility, December 2, 1935 Public Law 75-392, August 26, 1937, and subsequent acts	BENEFIT COST RATIOS Based on Direct Benefits	Based on Total Benefits	Date
LAND CERTIFICATION: 3/ : DEFINITE PLAN REPORT: To be completed as required	2/	2/	10/1/90

SUMMARIZED FINANCIAL DATA

Total Federal Obligations(Reclamation) 20/	$5,231,049,000	Allotments to September 30, 1989	$2,405,108,805
Total Federal Obligations(Other) 4/	639,871,531	Allotments for FY 1990	34,308,000
Net Property and Other Transfers:			
Federal Participation	5,689,399		
Non-Federal Participation Cash 5/	270,248,351	Allotments to Date	2,439,416,805
Non-Federal Participation-Noncash	36,381,719	Allotments Required for FY 1991	19,754,000
Adjustment 6/	247,546,000		
Total to be Allocated	$6,430,986,000	Balance to Complete after FY 1991	$2,771,878,195

ALLOCATIONS 7/		REPAYMENT		AMOUNTS PER ACRE		
Irrigation	$3,665,591,000	Amount Repaid by:		Irrig. Invest/Acre	$1,431	Payment Capacity per Acre-Foot:$8 to $48
Power	881,012,000	Irrigators 12/	$3,374,714,000	Repayment of Investment per Acre:		Annual Charges:
M&I	803,852,000	Power 13/	1,171,889,000			O&M
Recreation 8/	203,918,000	M&I 14/	803,852,000	By Irrigators	1,317	Construction
F&WL 9/	218,750,000	State-County 10/	271,919,000	By Power Revenues	114	$1.50 to $16.50 per acre foot
Flood Control	176,450,000	Local Interests 15/	12,135,000			
Navigation	6,941,000	Deferred Use	74,985,000			
State-County 10/	271,919,000					
Other 11/	202,553,000	Nonreimbursable 16/	721,492,000			
Total	$6,430,986,000	Total	$6,430,986,000			

STATUS OF REPAYMENT CONTRACT: As of September 30, 1989, 253 9(c) and 9(e) contracts for water service have been executed and 40 were under negotiation. Contracts for the construction of 27 9(d) distribution systems have been executed and one is under negotiation. Power wheeling contracts were executed June 22, 1965, and July 31, 1967, for San Luis Unit and the Central Valley Project, respectively. To date, 55 power sales contracts are in force.

STATUS OF NEPA COMPLIANCE: Auburn-Folsom South Unit - American River Water Marketing Environment Impact Statement draft filed with Environmental Protection Agency, December 29, 1988; final December 1991. San Luis Unit - closure and cleanup of the San Luis Drain/Kesterson Reservoir, draft filed April 30, 1986, final filed October 20, 1986. Pursuant to a Regional Water Quality Control Board order, Reclamation is currently monitoring a process that reduces selenium concentrations. Reclamation submitted a proposed long-term mitigation plan to the Regional Water Quality Control Board on December 15, 1989. An environmental statement on the Watsonville area is scheduled to be filed with the Environmental Protection Agency; draft, January 1994, final, September 1994. Trinity River Restoration Program - filed with Environmental Protection Agency, draft April 11, 1986, final August 18, 1986. 17/

DESCRIPTION: The project is located in central California and has project facilities in 29 counties 18/ of the State. The project consists of an integrated system for water storage and conveyance. Water made available by the project will provide full irrigation to 112,305 acres, supplemental water to 2,448,993 acres, 1,054,254 acre-feet of water annually for municipal and industrial use, and generation of 2,050,770 kilowatts 19/ of hydroelectric power. Flood control, recreation, navigation, and fish and wildlife protection are also products of the project. More than 200 different commercial crops are grown on the project, including cereal, field, forage, nursery, seed and truck crops, nuts, vines, and deciduous and citrus fruits. Additional information is provided by Project Data sheets for Auburn-Folsom South Unit, San Luis Unit, San Felipe Division, and Trinity River Restoration Program.

OTHER INFORMATION: Funds to initiate construction were appropriated in FY 1936. See Project Data Sheets for the San Luis Unit, Auburn-Folsom South Unit, San Felipe Division, and Trinity River Restoration Program for other information pertaining specifically to these units of the Central Valley Project. In late May 1981, a concluding report on the Allen Camp Unit was released placing the unit in inactive status because the benefit-cost ratio computed for the project indicates the unit is not economically justified for development at this time.

Miscellaneous Project Programs is 99 percent complete. Major features which are completed and in operation include: Delta Division: Tracy Pumping Plant, Delta Cross Channel, Contra Costa and Plainview distribution systems, Tracy-Contra Costa-Clayton Ignacio substation, Tracy Switchyard, Delta fish protection facilities, Contra Costa Canal System, Delta-Mendota Canal; Friant Division: Friant Dam and Reservoir, Friant-Kern and Madera Canals, Friant-Kern and Madera distribution systems; Shasta Division: Shasta and Keswick Dams and associated power systems; American River Division: Folsom Dam, Reservoir, and power facilities, Sly Park Dam and Conduit, Nimbus Dam, Reservoir, power facilities and fish protection facilities. Current and future activity includes Delta Support Studies, participation with the State of California in constructing facilities under the Suisun Marsh Protection and evaluation of need for a temperature control in Shasta Reservoir.

PROJECT DATA SHEET - 3
CENTRAL VALLEY PROJECT
CALIFORNIA

The Sacramento River Division is 92 percent complete. Major features which are completed and in operation include: Red Bluff Diversion Dam, Tehama-Colusa Canal system which includes reaches 1 through 8A of the Tehama-Colusa Canal, canalside pumping plants and distribution systems, Corning Canal and facilities, Corning Water District distribution system, and the Tehama-Colusa fish facilities. Current and future work includes modification of the Tehama-Colusa Canal headworks, and the bypass at the stilling basin, installation of fish screens, installation of a fishway on gate 6 and a fish ladder at Red Bluff Diversion Dam and installing deer fencing along the Tehama-Colusa Canal.

Footnotes:

1/ Sacramento River Division - FY 1994; San Luis Unit - would require about 6 years after distribution and drainage system is reauthorized to provide additional appropriation ceiling; Trinity River Restoration Program - FY 1995; San Felipe Division - Hollister and Santa Clara subareas - FY 1987, Watsonville area facilities - completion date remains to be identified. See individual Project Data Sheets, which follow, for details.

2/ See Project Data Sheets which follow for the San Luis Unit, Auburn-Folsom South Unit, and San Felipe Division of the Central Valley Project for benefit-cost ratios on these parts of the project.

3/ Land Certification: Auburn-Folsom South Unit, July 20, 1967; Trinity River Division, July 24, 1964; San Luis Unit, May 11, 1962, below elevation 470, February 14, 1979, above elevation 470; Sacramento River Division, May 3, 1956, additional certification of extended service area accomplished December 22, 1980; and San Felipe Division, January 19, 1979.

4/ Costs of construction administered by the Corps of Engineers for facilities associated with the Central Valley Project include $63,014,810 for Folsom Reservoir, $391,000,000 for New Melones Reservoir, $3,382,000 for reimbursable costs of Hidden Reservoir, $9,153,000 for reimbursable costs of Buchanan Reservoir, $14,509,000 for Black Butte Reservoir, and $96,000 for dredging on the Sacramento River. Also includes $156,716,721 for Department of Energy transmission facilities.

5/ Includes $233,206,114 from State of California for San Luis Joint-Use Facilities, $8,109,487 from Westlands Water District for distribution system construction, $25,000,000 from State of California and/or other entities for Shasta temperature control device, Miscellaneous Project Programs, $50,000 from San Felipe Committee for studies and investigations, $287,750 from San Benito County for recreation facilities, San Felipe Division, $3,585,000 from city of Redding for construction of Keswick Switchyard additions to provide direct power service to the city, and $5,000 from Big Valley Irrigation District, $2,500 from Modoc County, $2,500 from Lassen County for investigations on the Allen Camp Unit.

PROJECT DATA SHEET - 4
CENTRAL VALLEY PROJECT
CALIFORNIA

Footnotes: (Continued)

6/ Includes reimbursable interest during construction of $246,425,000 and $19,992,000 for the Department of Energy transmission lines less $18,871,000 for power wheeling costs on San Luis Unit and New Melones Project which are to be amortized annually as operation and maintenance costs over the 50-year contract period and are now the responsibility of the Department of Energy.

7/ The methodology of cost allocation has not been modified. An explanation of the changes in allocations between fiscal year 1990 and fiscal year 1991 is as follows:

Allocation	FY 1990 estimate	FY 1991 estimate
Irrigation	$3,638,757,000	$3,665,591,000
Power	1,067,065,000	881,012,000
Municipal and Industrial Water	714,097,000	803,852,000
Recreation	200,592,000	203,918,000
Fish and Wildlife	211,839,000	218,750,000
Flood Control	165,672,000	176,450,000
Navigation	6,090,000	6,941,000
San Luis-State-County	210,251,000	271,919,000
Other	200,815,000	202,553,000
Total	$6,415,178,000	$6,430,986,000

PROJECT DATA SHEET - 5
CENTRAL VALLEY PROJECT
CALIFORNIA

Footnotes: (continued)

Explanation	Amount of change
Cost indexing (October 1989 to October 1990).	$+37,142,000
Changes in quantities or estimates: Auburn-Folsom South Unit - Reestimate for contingencies and nonappropriation transfers; Miscellaneous Project Programs - Reestimate of contingency requirements and completion of Gold Hill Expansion Unit of the Foresthill recreation facilities construction of Shasta temperature control device; Sacramento River Division - Reestimate of contingency requirements and additional contractor earnings on the Red Bluff fish bypass facilities; San Felipe Division - Reestimate of contingency requirements, land and rights on San Justo Dam and Reservoir and Santa Clara Tunnel and Conduit, additional contractor earnings for the Supervisory Control System, reduction in contract value for cathodic protection on Hollister Conduit, landscaping at Coyote Pumping Plant and Pacheco Conduit; San Luis Unit - Land and rights for Arroyo Pasajero and Basalt Hill quarry, Kesterson cleanup through 1990, San Joaquin Valley drainage program, additional contractor earnings for Sierra Vista microwave link; Trinity River Restoration Program - Reestimate of contingency requirements, contractor earnings for the freezer building, Grass Valley Creek debris dam and Rush Creek rehabilitation, land and rights for Grass Valley Creek debris dam	+50,725,000
Additional contractor claims: Auburn-Folsom South Unit - Foresthill recreation facilities; San Felipe Division - Santa Clara Tunnel, Santa Clara Conduit, section No. 1, Coyote Pumping Plant; Sacramento River Division - Tehama-Colusa Canal trash deflectors	+874,000

PROJECT DATA SHEET - 6
CENTRAL VALLEY PROJECT
CALIFORNIA

Footnotes: (continued)

Interest during construction	-10,708,000
New Features: Trinity River Division - Monitoring wier on Trinity River; San Luis Unit - Construct Arroyo Pasajero facilities, long-term San Joaquin Valley drainage plan; San Felipe Division - Wildlife planting and irrigation landscaping	+91,859,000
Other: Corps of Engineers and Department of Energy (Construction of the California-Oregon Transmission Project has been eliminated from the Department of Energy program.), non-Federal contributions and rounding	-154,384,000
Total	$ +15,808,000

The irrigation water allocation increased due to increases in the cost for the Shasta Reservoir temperature control device (Miscellaneous Projects), Auburn-Folsom South Unit, San Luis Unit, and Trinity River Restoration Program, partially offset by a decreased cost for the American River Division facilities (Miscellaneous Projects) and a lesser allocation of costs to this function as a result of revised water delivery projections. The municipal and industrial water allocation increased due to the increase in cost for the Shasta Reservoir temperature control device (Miscellaneous Projects), the Auburn-Folsom South Unit, San Luis Unit, and Trinity River Restoration Program; increases in interest during construction and increases as a result of revised water delivery projections.

PROJECT DATA SHEET - 7
CENTRAL VALLEY PROJECT
CALIFORNIA

Footnotes: (continued)

The power allocation decreased due to a decreased cost associated with the DOE facilities and a decrease in interest during construction costs allocated to this function. (The substantial decrease in DOE costs (construction and IDC) results from the removal of California Oregon Transmission Project (COTP) costs from the costs for the CVP. The COTP costs have been inadvertently included with CVP costs in previous PF-65 submittals when, in fact, the costs associated with the COTP are power costs which will be repaid by entities other than Western (DOE) and Reclamation.) The decrease to the power function is partially offset by increases in the cost for the Shasta Reservoir Temperature Control Device, Shasta Division (Miscellaneous Projects), Auburn Power Facilities (Auburn-Folsom South Unit), and the Trinity River Restoration Program. The recreation allocation includes increases in cost for Auburn Dam and Reservoir, Auburn-Folsom South Unit, increased joint costs to this function for Santa Clara Tunnel and Conduit, San Felipe Division and an increase in interest during construction allocated to this function. The fish and wildlife allocation includes increases for joint costs to fish and wildlife functions for Shasta Reservoir temperature control device (Miscellaneous Projects), Auburn Dam and Reservoir, Auburn-Folsom South Unit, and Santa Clara Tunnel and Conduit, San Felipe Division and an increase in cost for the Trinity River Restoration Program. The flood control allocation includes increases in the joint costs for Shasta Reservoir temperature control device (Miscellaneous Projects), Auburn Dam and Reservoir, Auburn-Folsom South Unit, and New Melones Dam and Reservoir, Corps of Engineers. The navigation allocation increase is related to the increased cost for Shasta Reservoir temperature control device (Miscellaneous Projects). The State/County allocation increase is related to increased costs for San Luis Canal and San Luis Dam and Reservoir (San Luis Unit) and Trinity River Restoration Program. The allocation to Other increased due primarily to an increase in costs associated with cultural resources activities for Auburn Dam and Reservoir, an increase in highway improvement costs for Auburn Dam and Reservoir (Auburn-Folsom South Unit), and an increase in water quality joint costs for New Melones Dam and Reservoir (Corps of Engineers). The increase to Other was partially offset by a decrease in costs for Deferred Use; this results from a decrease in costs for Tehama-Colusa Canal Diversion/Fish Problems which are included with costs for Tehama-Colsua Canal resulting in a net decrease in the allocation to Deferred use for Tehama-Colusa Canal, Sacramento River Division.

8/ Includes reimbursable non-Federal recreation, $12,135,000, and nonreimbursable recreation, $191,783,000.

Footnotes: (continued)

9/ Includes the following nonreimbursable costs: fish and wildlife enhancement, $98,794,000; wildlife refuge, $29,981,000; fish and wildlife mitigation, $37,000,000; anadromous fishery, $8,674,000; and waterfowl conservation, $44,301,000 in accordance with Public Law 95-616, November 18, 1978, whereby water provided by the Central Valley Project for waterfowl conservation shall not be reimbursable or returnable under Federal Reclamation Laws.

10/ Public Law 98-541 specifically provided that 15 percent of the Trinity River Restoration Program be allocated to State and county and this amount be reimbursed to the United States Treasury as the funds are expended by the Bureau of Reclamation.

11/ Includes deferred use, $74,985,000; water quality, $5,718,000; highway improvements, $97,457,000; cultural resources activities (Public Law 93-291), $23,280,000; and nonreimbursable investigations for Allen Camp Unit, $1,113,000.

12/ Of this amount an estimated $1,470,423,000 are covered by existing water service and repayment contracts. The remaining $1,904,291,000 are expected to be repaid by future contracts and increases in the water rates of existing water service contracts. The change in the estimated amount to be recovered from irrigators is the result of the extension of the computational period for the repayment studies. Recovery of costs identified as being reimbursable is currently based on an incremental 50-year repayment basis. This means that each major unit of the Central Valley Project, with the exception of the Auburn-Folsom South Unit and the San Felipe Division, has a 50-year repayment period computed from the plant-in-service date of the New Melones Dam Unit; i.e., the repayment period for these units terminates in fiscal year 2030. The San Felipe Division was placed into service in fiscal year 1988 and the repayment period for this Division terminates in fiscal year 2037. The repayment period for the Auburn-Folsom South Unit would extend 50 years beyond the date these facilities are placed into service.

13/ Full repayment will be accomplished in the time required for repayment, and will be sufficient to recover all costs allocated to the commercial function and those costs which are above and beyond the capability of the irrigators to repay.

14/ Of this amount, $4,264,000 of the distribution system costs are scheduled to be repaid by existing repayment contracts. The remaining $799,588,000 will be repaid by future water service contracts and increases in the water rates of existing water service contracts.

PROJECT DATA SHEET - 9
CENTRAL VALLEY PROJECT
CALIFORNIA

Footnotes: (continued)

15/ Reimbursable allocations to recreation of $11,488,000 for the Auburn-Folsom South Unit would be repaid by local interests under Section 3 of Public Law 89-161. The reimbursable recreation costs of $342,000 for the San Felipe Division will be paid by local interests under provisions of Public Law 89-72. The reimbursable recreation costs of $100,000 for the American River Division will be repaid by local interests under Public Law 89-72. The reimbursable recreation costs of $105,000 for the Delta Division will be repaid by local interests under Public Law 89-72. The reimbursable recreation costs of $100,000 for the Friant Division will be repaid by local interests under Public Law 89-72.

16/ Includes flood control, $176,450,000; navigation, $6,941,000; fish and wildlife enhancement, $98,794,000; wildlife refuge, $29,981,000; fish and wildlife mitigation, $37,000,000; anadromous fishery, $8,674,000; recreation, $191,783,000; water and quality, $5,718,000; highway improvements, $97,457,000; cultural resources activities, $23,280,000; waterfowl conservation, $44,301,000; and nonreimbursable investigations for Allen Camp Unit, $1,113,000.

17/ Final filed with Council on Environmental Quality as follows: Sacramento River Division, Tehama-Colusa Canal - June 7, 1972, Supplemental filed May 16, 1975; San Luis Unit - October 4, 1972; Auburn-Folsom South Unit, Auburn Dam and Reservoir and Folsom South Canal - November 13, 1972, Supplemental filed August 6, 1973, amendment to final filed September 20, 1974, Supplemental No. 2 final filed September 23, 1980; Foresthill Divide area - final filed May 25, 1976; San Felipe Division - Divisionwide March 8, 1976. San Luis Unit Supplemental draft filed July 30, 1979. Allen Camp Unit statement will not be filed as the unit is not economically justified for development. A Categorical Exclusion Checklist for the Trinity Fish Hatchery Modification was completed October 6, 1983.

18/ Twenty-nine counties - Alameda, Butte, Colusa, Contra Costa, El Dorado, Fresno, Glenn, Kern, Kings, Lassen, Madera, Merced, Modoc, Monterey, Placer, Sacramento, San Benito, Santa Clara, Santa Cruz, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Trinity, Tulare, Yolo, and Yuba.

19/ This includes 300,000 kilowatts developed by the Corps of Engineers New Melones Powerplant and includes 153,410 kilowatts of generator capacity available from Shasta Division and American River Division power facilities due to uprating of capacities which has been accomplished under the operation and maintenance program.

20/ Separate Project Data Sheets which follow for the individual units and divisions provide comparisons between current estimates of appropriations and the appropriation ceilings for San Luis Unit, Auburn-Folsom South Unit, San Felipe Division, and Trinity River Restoration Program.

REGION:
Mid-Pacific

PROJECT DATA SHEET

PROJECT AND STATE:
CENTRAL VALLEY PROJECT, AUBURN-FOLSOM SOUTH UNIT, CALIFORNIA

Completion Date	% Complete	Date
1/ .	1/ 26	1/31/90

AUTHORIZATION:
Public Law 89-161, September 2, 1965

LAND CERTIFICATION:
July 20, 1967

DEFINITE PLAN REPORT:
To be completed as required

BENEFIT COST RATIOS		
Based on Direct Benefits	Based on Total Benefits	Date
2.0 2/	2.1 2/	10/1/90

SUMMARIZED FINANCIAL DATA

Total Federal Obligations(Reclamation) 14/	$2,164,041,000
Total Federal Obligations(Other-Dept. of Energy)	68,445,000
Net Property and Other Transfers:	
Federal Participation	1,456,000
Non-Federal Participation	
Adjustment 3/	185,796,000
Total to be Allocated	$2,419,738,000

Allotments to September 30, 1989	$ 344,611,221
Allotments for FY 1990	1,676,000
Allotments to Date	346,287,221
Allotments Required for FY 1991	1,500,000
Balance to Complete after FY 1991	$1,816,253,779

ALLOCATIONS 4/	
Irrigation	$1,245,651,000
Power	427,253,000
M&I	431,138,000
Recreation 5/	128,831,000
F&WL 6/	59,553,000
Flood Control	29,313,000
Deferred Use 7/	2,425,000
Hwy Improvement	82,794,000
Other 8/	12,780,000
Total	$2,419,738,000

REPAYMENT	
Amount Repaid by:	
Irrigators 9/	$1,145,217,000
Power 10/	527,687,000
M&I 10/	431,138,000
Local Interests 11/	11,488,000
Deferred Use 7/	2,425,000
Nonreimbursable 12/	301,783,000
	$2,419,738,000

AMOUNTS PER ACRE	
Irrig. Invest/Acre	$2,994
Repayment of Investment per Acre:	
By Irrigators	2,753
By Power Revenues	241

Payment Capacity per Acre-Foot: $8.10 to $40.30
Annual Charges:
O&M
Construction

STATUS OF REPAYMENT CONTRACT: Contracts executed with East Bay Municipal Utility District, Sacramento Municipal Utility District, Foresthill Public Utility District, and Placer County Water Agency. Negotiations will continue with Central San Joaquin Water Conservation District, Galt Irrigation District, Mather Air Force Base, North San Joaquin Water Conservation District, Omochumne-Hartnell Water District, Sacramento County Water Agency, San Joaquin County Flood Control and Water Conservation District, Stockton-East Water District, Woodbridge Irrigation District, and Woodbridge Water Users Conservation District for water from Folsom South Canal after the 1974 court injunction is lifted.

STATUS OF NEPA COMPLIANCE: American River Water Marketing Environmental Impact Statement draft filed with Environmental Protection Agency, December 29, 1988; final December 1991. 13/

PROJECT DATA SHEET - 2
CENTRAL VALLEY PROJECT
AUBURN-FOLSOM SOUTH UNIT, CALIFORNIA

DESCRIPTION: This unit located in the east-central part of the Sacramento-San Joaquin Valley would provide full irrigation to 28,300 acres, supplemental water to 387,750 acres, and 332,000 acre-feet annually for municipal and industrial use. The power installation at Auburn would have an initial capacity of 300,000 kilowatts, consisting of two units of 150,000 kilowatts each, with provision for ultimate development of the hydroelectric capacity, now estimated to consist of an additional two units of 150,000 kilowatts each. The installation of the ultimate capacity would require additional authorization. This unit would also provide recreation, fish and wildlife, and flood control benefits.

OTHER INFORMATION: Funds for preconstruction planning and initial acquisition of land and rights were appropriated in FY 1966 and for construction in FY 1967. The National Resources Defense Council, Inc. vs. Stamm, Case No. S-2663 in the U.S. District Court, Eastern District of California, was filed in December 1972. By order of the court in 1974, in the above case, the Bureau of Reclamation was ordered to notify the court and all parties to that action as soon as the decision is made by the Secretary of the Interior to construct Reaches 3, 4, or 5 of the Folsom South Canal and not to commence such construction until at least 60 days after said notice is given nor can he acquire any lands for that construction or enter into any water service contracts for American River Division water. The opposition to the Folsom South Canal results from a possible decrease in American River minimal flows due to proposed diversions. The controversy is expected to continue over selection of solutions proposed and the court retains jurisdiction over canal Reaches 3, 4, and 5 because of these problems. The Bureau of Reclamation is in the process of preparing a report and environmental statement for the alternative studies. In view of the controversial nature of the many issues and other matters relating to the subject and the divergent interests of the parties involved, the Bureau completed the report and the draft water marketing environmental statement in December 1988. After review, the documents will be finalized and will be available for use in the total decision process of all involved.

A major earthquake on August 1, 1975, with the epicenter near Oroville Dam in northern California raised safety questions that prompted extensive investigations of the Foothills fault system and the Auburn Dam area. The studies resulted in the development of seismic loading parameters which were released by the Secretary of the Interior in July 1979. The parameters specify a maximum credible earthquake with magnitude of 6.5 and 5 inches of movement in the foundation as the minimum criteria to be met by any dam proposed for construction in the Auburn area. On December 30, 1980, the Secretary announced his decision that a safe dam could be constructed at the Mile 20 site and that a concrete gravity dam is the most appropriate design. When this decision was released, the Secretary asked that a number of detailed studies be completed for presentation to Congress. The Folsom South-Lower American River Studies have been updated and are essentially complete. In fiscal year 1987, the Bureau of Reclamation initiated a Folsom South Area Conjunctive Use Study to evaluate plans for concurrent use of the ground water basin and existing storage developments on streams tributary, adjacent to and within the Folsom South area to meet the service area needs and provide suitable flows in the Lower American River. These studies will provide the basis for possible legislation amending the Auburn-Folsom South Unit Act of 1965 which would then permit construction of the modified unit and water contracting to proceed. A reevaluation of the flood control analysis of the Lower American River has been completed. The Bureau, in cooperation with the Corps of Engineers, the State of California and local entities, is conducting an assessment of the water needs and the options for supplying additional water to communities in northeast Sacramento County, western El Dorado County and southern Placer County under the assumption that a multipurpose Auburn Dam will not be built. This assessment will be completed in fiscal year 1990. The American River Authority (ARA) has presented a proposal to fund up to $700 million for the original full service dam. Department of the Interior appointed a five-member negotiating team to work with the ARA to see if a complete cost sharing agreement can be reached.

Footnotes:

1/ Water is now available from the first 27 miles of the Folsom South Canal. In addition, Sugar Pine Dam and the Forest Hill conveyance system have been completed. Initial power schedule is dependent upon completion of the Folsom South-Lower American River Studies and legislation amending the Auburn-Folsom South Unit Act of 1965.

2/ The total benefit-cost ratio increased to 2.1 and the direct benefit-cost ratio increased to 2.0. The ratios were computed using the authorized interest rate of 3-1/8 percent. Direct and total irrigation benefits decreased due to a significant shift from irrigation to municipal and industrial water in the projected water deliveries for Folsom South Canal partially offset by an increase in indirect benefits due to a higher estimate of savings in pumping costs. Municipal and industrial water benefits increased due to increased storage benefits resulting from the redistribution of the Folsom South Canal water supply and to the use of a higher rate in calculating the AE value of a non-federal, single-purpose alternative M&I water supply project. Power, fish and wildlife, flood control, and recreation benefits increased due to indexing. The estimated costs of operation, maintenance, and replacement increased due to indexing.

3/ Represents reimbursable interest during construction which increased $14,247,000 due to increased costs of the Auburn and Folsom South facilities, due to the extension of the construction period by 1 year; and due to the use of an adjusted interest rate (from 3.125 percent, authorized rate, to 3.225 percent, repayment rate) used in calculating interest during construction.

Footnotes: (continued)

4/ The methodology of cost allocation has not been modified. An explanation of the changes in allocations between fiscal year 1990 and fiscal year 1991 is as follows:

Allocation	FY 1990 estimate	FY 1991 estimate
Irrigation	$1,256,420,000	$1,245,651,000
Power	420,479,000	427,253,000
Municipal and Industrial Water	378,289,000	431,138,000
Recreation	126,574,000	128,831,000
Fish and Wildlife	58,676,000	59,553,000
Flood Control	28,668,000	29,313,000
Deferred Use	2,425,000	2,425,000
Highway Improvements	80,442,000	82,794,000
Other	12,615,000	12,780,000
Total	$2,364,588,000	$2,419,738,000

Explanation	Amount of change
Cost indexing (October 1989 to October 1990)	+40,779,000
Changes in quantities: Contractor claim on the Foresthill recreation facilities	+25,000
Interest during construction	+14,247,000
Others: Contingency requirements and miscellaneous adjustments	+99,000
Total	+55,150,000

Footnotes: (continued)

The power allocation increased due primarily to an increase in the estimated cost of Auburn Powerplant and to an increase in interest during construction (IDC) costs allocated to power. The irrigation costs decreased due to a lesser allocation of costs to this function as a result of revised water delivery projections; the decrease was partially offset by an increase in estimated costs for the Auburn-Folsom South Unit facilities. Costs associated with the municipal and industrial function increased due to higher estimated costs for the Auburn-Folsom South Unit, to an increase in IDC costs allocated to this function, and to a greater allocation of costs to this function as a result of revised water delivery projections. The recreation function costs increased due to higher estimated costs for the Auburn Dam and Reservoir and to an increase in IDC costs allocated to this function. The fish and wildlife allocation increased primarily due to increased joint costs to the fish and wildlife functions for Auburn Dam and Reservoir. The flood control and highway improvement functions increased due to an increase in the costs for Auburn Dam and Reservoir.

5/ Includes reimbursable non-Federal recreation, $11,488,000, and nonreimbursable recreation of $117,343,000.

6/ Includes nonreimbursable waterfowl conservation, $29,581,000; the nonreimbursable functions of fish and wildlife enhancement, $5,164,000; anadromous fishery, $8,674,000; and wildlife refuge, $16,134,000.

7/ Authorized by Public Law 89-161 to provide capacity in Folsom South Canal to serve the future Eastside Division.

8/ For cultural resources activities (Public Law 93-291).

9/ No permanent repayment contracts have been negotiated to date; negotiations with the water users will be renewed in compliance with the 1974 court order. See the Project Data Sheet of the Central Valley Project.

10/ Due to operational and financial integration, repayment by the power function, including aid to irrigation, and the municipal and industrial function is appropriately determined only in the composite repayment analysis of the total authorized Central Valley Project. To illustrate repayment for this unit, part of net revenues from power available for repayment of the total project is shown. See the Project Data Sheet of the Central Valley Project for the repayment analysis of these functions.

11/ Reimbursable allocations to recreation $11,488,000 to be repaid by local interests under Section 3 of the authorizing act.

PROJECT DATA SHEET - 6
CENTRAL VALLEY PROJECT
AUBURN-FOLSOM SOUTH UNIT, CALIFORNIA

Footnotes: (continued)

12/ Includes flood control, $29,313,000; fish and wildlife enhancement, $5,164,000; anadromous fishery, $8,674,000; wildlife refuge, $16,134,000; recreation, $117,343,000; highway improvements, $82,794,000; cultural resources activities, $12,780,000; and waterfowl conservation, $29,581,000.

13/ Projectwide final environmental statement was filed with Council on Environmental Quality November 13, 1972. Supplement to final filed with Council on Environmental Quality August 6, 1973. Amendment to final filed with Council on Environmental Quality September 20, 1974. Supplemental No. 2 filed with Environmental Protection Agency September 23, 1980. Foresthill Divide area final filed with Council on Environmental Quality May 25, 1976. American River Water Marketing Environmental Impact Statement draft filed with Environmental Protection Agency, December 29, 1988; final December 1991. The Secretary of the Interior has requested that the draft American River Water Marketing Environmental Impact Statement be revised causing the delay in the filing of the final.

14/ Appropriations authorized are $1,422,358,000 (October 1990). The comparable Federal obligation is $2,164,041,000 which exceeds the appropriation ceiling by more than the amount of contingencies included in the obligation. Appropriate congressional committees will be advised of the ceiling status for this project. Legislation to provide additional appropriation ceiling would be needed to complete the project as authorized. Current commitments will be held within the existing ceiling.

PHYSICAL DATA ON STRUCTURES - 7
CENTRAL VALLEY PROJECT
AUBURN-FOLSOM SOUTH UNIT, CALIFORNIA

CONSTRUCTION PROGRAM:

Auburn Dam and Reservoir - Included in Estimate

Dam:
Type - Concrete gravity
Structural Height - 685 feet
Crest Length - 4,150 feet

Spillway:
Type - one chute - six submerged gated orifices per chute
Design Discharge - 330,000 cubic feet per second

Reservoir Capacity:
Total Storage - 2,300,000 acre-feet

Auburn Powerplant

Initial authorized powerplant - two units with total plant capacity of 300,000 kilowatts.
Provisions for two additional units of 150,000 kilowatts.

Sugar Pine Dam and Reservoir

Dam:
Type - Zoned earthfill
Structureal Height - 200 feet
Crest Length - 675 feet
Base Width - 1,000 feet

Spillway:
Type - Ungated chute
Design Discharge - 13,200 cubic feet per second

Reservoir Capacity:
Total Storage - 7,000 acre-feet

Foresthill Conveyance System - Length - 18.1 miles

Folsom South Canal - Length - 26.7 miles completed, 42.1 miles to be constructed; capacity - 125 to 3,500 cubic feet per second; bottom width - 4.0 to 34.0 feet; water depth - 4.1 to 17.8 feet

Folsom South Distribution System - Length - 133.1 miles of distribution laterals and 1,297 miles of drainage laterals

PHYSICAL DATA ON STRUCTURES - 5
CENTRAL VALLEY PROJECT
AUBURN-FOLSOM SOUTH UNIT, CALIFORNIA

Land and Rights

Quantity - 35,719 acres
Total Estimated Cost - $47,279,000 1/
Cost per Acre - $1,324 1/
Acquisition - 39 percent complete as of September 30, 1989 2/

Relocation

Total Estimated Cost - $208,679,000 3/
Percent Complete - 15 percent as of September 30, 1989

Items:	Total cost	Cost to September 30, 1989
California State Highway No. 49 and roads, bridges, utilities, and transmission lines		
In the Auburn Dam and Reservoir area	$188,277,910	$28,423,042
In the Foresthill Divide area	322,048	322,048
Folsom South Canal and distribution and drainage systems	20,079,042	3,217,000
TOTAL	$208,679,000	$31,962,090

1/ Decrease from fiscal year 1990 Budget Justifications due to decrease in indexing factors for land and rights applied to the Northern California area.

2/ Increase from fiscal year 1990 Budget Justifications due to indexing factors for land values decreasing in California.

3/ Increase from fiscal year 1990 Budget Justifications due to indexing.

REGION:
Mid-Pacific

PROJECT DATA SHEET

PROJECT AND STATE:
CENTRAL VALLEY PROJECT, SAN FELIPE DIVISION, CALIFORNIA

Completion Date	% Complete	Date
1/	1/ 87	1/31/90

AUTHORIZATION:
Public Law 90-72, August 27, 1967

BENEFIT COST RATIOS

Based on Direct Benefits	Based on Total Benefits	Date
2.0 2/	2.5 2/	10/1/90

LAND CERTIFICATION: August 20, 1975
January 19, 1979 3/

DEFINITE PLAN REPORT: Status Report 4/
Final to Commissioner, October 9, 1981

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 15/	$ 349,570,000
Total Federal Obligations (Other-Dept. of Energy)	6,553,000
Net Property and Other Transfers:	
Federal Participation	360,000
Non-Federal Participation 5/	229,000
Adjustment 6/	44,594,000
Total to be Allocated	$ 401,306,000

Allotments to September 30, 1989	$ 299,164,374
Allotments for FY 1990	2,564,000
Allotments to Date	301,728,374
Allotments Required for FY 1991	1,715,000
Balance to Complete after FY 1991	$ 46,126,626

ALLOCATIONS 7/	
Irrigation	$ 138,920,000
Power	
M&I	235,527,000
Recreation 8/	12,996,000
F&WL	10,572,000
Flood Control	
Navigation	
State-County	
Other 9/	3,291,000
Total	$ 401,306,000

REPAYMENT	
Amount Repaid by:	
Irrigators 10/	$127,733,000
Power 11/	11,187,000
M&I 11/	235,527,000
Local Interest Payment for Share of Recreation 12/	342,000
Nonreimbursable 13/	26,517,000
	$401,306,000

AMOUNTS PER ACRE	
Irrig. Invest/Acre	$3,094
Repayment of Investment per Acre:	
By Irrigators	2,845
By Power Revenues	249

Payment Capacity per Acre-Foot: $12.50 to $47.50
Annual Charges:
O&M
Construction

STATUS OF REPAYMENT CONTRACT: A water-service contract with the Santa Clara Valley Water District, the major water user, was executed June 7, 1977, and validated November 10, 1977. Water-service contract with San Benito County Water Conservation and Flood Control District was executed April 15, 1978, and validated June 29, 1978. A water-service contract with Watsonville interests is scheduled for execution in October 1994 and validation in November 1994. 14/

STATUS OF NEPA COMPLIANCE: Projectwide - final environmental statement was filed with Council on Environmental Quality March 8, 1976. Negative determination (NDN 78-4) for conveyance system modification signed March 20, 1978. An environmental statement on the Watsonville area is scheduled to be filed with the Environmental Protection Agency; draft, January 1994, final, September 1994. 14/

PROJECT DATA SHEET - 2
CENTRAL VALLEY PROJECT
SAN FELIPE DIVISION, CALIFORNIA

DESCRIPTION: This division is located in the central coastal area of California south of San Francisco and embraces the Santa Clara Valley in Santa Clara County, north portion of San Benito County, southern portion of Santa Cruz County, and the northern edge of Monterey County. The division will provide supplemental water to 44,900 acres and provide 135,400 acre-feet of water annually for municipal and industrial use. Water from San Luis Reservoir will be transported to the service area through Pacheco Tunnel and other principal features which include 8.1 miles of tunnels, 46.9 miles of closed conduits, one pumping plant, and one small reservoir. The Pacheco Tunnel inlet was constructed under authority contained in the San Luis Unit Authorization Act.

OTHER INFORMATION: Funds were first appropriated to initiate preconstruction planning in FY 1970 and to begin construction in FY 1975. The system to serve the Watsonville subarea had been tentatively deferred; however, at the request of the Pajaro Valley Water Management Agency, a study has been initiated to determine the engineering and economic feasibility of providing water service to the Watsonville subarea.

Footnotes:

1/ The facilities which will provide water service to the Hollister and Santa Clara subareas were substantially complete in FY 1987. Watsonville Facilities are scheduled to be completed after FY 1995 due to delay in completing the feasibility study.

2/ The total benefit-cost ratio increased from 2.2 to 2.5 and the direct benefit-cost ratio increased from 1.9 to 2.0 as presented in the fiscal year 1990 Budget Justifications. Direct and total irrigation benefits increased due to higher estimated benefits per acre-foot. Fish and wildlife and recreation benefits increased due to indexing. Municipal and industrial water benefits increased due to indexing and to an increase in the estimated Pacheco Tunnel in-basin benefits. The total annual costs increased due to estimated increases in the Pacheco Tunnel in-basin facility costs, estimated increases in the costs for the main facilities, and increased interest during construction costs. This increase is partially offset by decreased estimated costs for the Watsonville facilities and revised costs for Hollister Distribution System to reflect actual, rather than estimated, costs for this facility. The ratios were computed using the authorized interest rate of 3-1/8 percent.

3/ Hollister and Santa Clara service areas were certified on August 20, 1975 and the Watsonville service area was certified on January 19, 1979.

Footnotes: (continued)

4/ The July 1981 Definite Plan Report did not include the required up-to-date revised cost allocation and repayment analysis; therefore, the Definite Plan Report was retitled "Status Report on the San Felipe Division," and the cost allocation and repayment analysis will be prepared after construction. The Final Status Report was sent to the Commissioner October 9, 1981. A Status Report on the Watsonville Facilities is scheduled to be sent to the Commissioner: draft, January 1994, final, September 1994.

5/ Includes contributions of $50,000 by the San Felipe Committee for preconstruction studies and $179,000 by San Benito County for public use facilities.

6/ This amount consists of interest during construction of $36,212,000 and a transfer of $8,382,000 for the cost of the inlet to Pacheco Tunnel built concurrently with San Luis Reservoir. The change in interest during construction results from increased costs for the main facilities and from the use of an adjusted interest rate from 3.125 percent (authorized rate of interest) to 5.116 percent (repayment rate of interest). The adjusted 5.116 percent rate for calculating interest during construction was determined to be appropriate as a result of an audit by the Inspector General.

7/ The methodology of cost allocation has not been modified. An explanation of the changes in allocations between fiscal year 1990 and fiscal year 1991 is as follows:

Allocation	FY 1990 estimate	FY 1991 estimate
Irrigation	$ 139,951,000	$ 138,920,000
Municipal and Industrial Water	218,268,000	235,527,000
Recreation	12,817,000	12,996,000
Fish and Wildlife	10,448,000	10,572,000
Other	3,291,000	3,291,000
Total	$ 384,775,000	$ 401,306,000

PROJECT DATA SHEET - 4
CENTRAL VALLEY PROJECT
SAN FELIPE DIVISION, CALIFORNIA

Footnotes: (continued)

Explanation	Amount of change
New Contracts: Landscaping, San Justo Dam and Reservoir.	+268,000
Changes in quantities: payment of contractor claims on Santa Clara Conduit, section 1, Santa Clara Conduit, section 2, Coyote Pumping Plant, contract value for Supervisory Control System, cathodic protection, Hollister Conduit, public use facilities, Coyote Pumping Plant landscaping, Pacheco Conduit landscaping	+2,209,000
Land and rights	+411,000
Interest during construction	+14,755,000
Others: Reevaluation of noncontract costs, relocation of existing property and elimination of transfer stipulation requirements	-1,112,000
Total	+$16,531,000

The irrigation allocation decreased due primarily to a net decrease in estimated costs for Watsonville facilities and to a decreased allocation to this function based on revised water delivery projections. The municipal and industrial water allocation increased as a result of increased interest during construction (IDC) costs, an increased allocation to this function based on revised water delivery projections, and increased IDC costs allocated to this project purpose as a result of an adjusted interest rate (from 3.125 percent (authorized rate) to 5.116 percent (repayment rate)) used in calculating IDC; increase was partially offset by a net decrease in estimated costs for main facilities.

8/ Includes reimbursable non-Federal recreation costs of $342,000 and nonreimbursable recreation costs of $12,654,000.

9/ For cultural resources activities (Public Law 93-291).

PHYSICAL DATA ON STRUCTURES - 5
CENTRAL VALLEY PROJECT
SAN FELIPE DIVISION, CALIFORNIA

10/ Of this amount $83,058,000 is covered by existing water-service contracts. The remaining $44,675,000 for the Watsonville area is to be repaid by future contracts. Repayment is based on the most recent total authorized project repayment studies.

11/ Due to operational and financial integration, repayment by the power, including aid to irrigation, and municipal and industrial functions, is appropriately determined only in the composite repayment analysis of the total authorized Central Valley Project. To illustrate repayment for this unit, part of the net revenues from power available for repayment of the total project is shown. See the Project Data Sheet of the Central Valley Project for the repayment analysis of these functions.

12/ Reimbursable allocation to recreation to be repaid by San Benito County under Section 3 of the authorizing act.

13/ Nonreimbursable includes fish and wildlife enhancement, $10,495,000; waterfowl conservation, $77,000; recreation, $12,654,000; and cultural resources activities, $3,291,000.

14/ On October 14, 1987 the Pajaro Valley Water Management Agency passed a resolution expressing the Agency's interest in and intent to contract for 19,900 acre-feet of San Felipe Division water for the Watsonville subarea.

15/ Appropriations authorized are $355,621,000 (October 1990). The comparable Federal obligation including $19,400,000 for a Federal loan to San Benito County Water Conservation and Flood Control District (District) to build a distribution system is $368,970,000 which does not exceed the ceiling by more than 5 percent. Estimating data on the Watsonville Facilities are not firm enough to determine if additional authorization in the obligation ceiling is necessary. The situation will be analyzed periodically as new and more precise data become available to determine the impact of the changes.

PHYSICAL DATA ON STRUCTURES - 6
CENTRAL VALLEY PROJECT
SAN FELIPE DIVISION, CALIFORNIA

CONSTRUCTION PROGRAM:

Pacheco Tunnel: Length - 7.0 miles Diameter - Reach 1 - 13.0 feet circular Reach 2 - 9.5 feet circular	Capacity: 490 cubic feet per second
Pacheco Pumping Plant: 12 units - 24,000 hp total	Capacity: 490 cubic feet per second, total
Pacheco Conduit: Length - 8.0 miles Diameter - 120 inches	Capacity: 490 cubic feet per second
Santa Clara Tunnel and Conduit	
Tunnel: Length - 1.0 mile Diameter - Designed at 102 inches Constructed at 114 inches without additional cost	Capacity: 397 cubic feet per second
Conduit: Length - 21.4 miles Diameter - 96, 102, and 120 inches	Capacity: 397 cubic feet per second
Coyote Pumping Plant: Six units - 12,000 hp total	Capacity: 300 cubic feet per second, Total
Hollister Conduit: Length - 19.2 miles Diameter - 54 and 60 inches	Capacity: 93 cubic feet per second

PHYSICAL DATA ON STRUCTURES - 7
CENTRAL VALLEY PROJECT
SAN FELIPE DIVISION, CALIFORNIA

Watsonville Conduit
Length - 20.0 miles
Diameter - 42 inches

Capacity:
67 cubic feet per second

San Justo Dam and Reservoir

Dam:
Type - Earth and rockfill
Structural Height - 126 feet
Crest Length - 730 feet
Base Width - 900 feet

Spillway:
Type - Overflow
Design Discharge - 280 cubic feet per second

Reservoir Capacity:
Total Storage - 9,900 acre-feet

Land and Rights:

Quantity - 1,388 acres 1/
Total Estimated Cost - $8,251,026 1/
Cost per Acre - $5,945
Acquisition - 95 percent complete as of September 30, 1989 2/

Relocation:

Total Estimated Cost - $389,442
Percent Complete - 100 percent complete as of September 30, 1989

1/ Costs for land and rights are for Hollister and Santa Clara subareas. Costs for the Watsonville facilities are not available.

2/ Additional land to be purchased in the San Justo Dam and Reservoir area in fiscal year 1990.

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PROJECT DATA SHEET

REGION:
Mid-Pacific

PROJECT AND STATE:	Completion Date	% Complete	Date
CENTRAL VALLEY PROJECT, SAN LUIS UNIT, CALIFORNIA	1/	1/ 72	1/31/90

AUTHORIZATION:	BENEFIT COST RATIOS Based on Direct Benefits	BENEFIT COST RATIOS Based on Total Benefits	Date
Public Law 86-488, June 3, 1960; Public Law 95-46, June 15, 1977			
LAND CERTIFICATION: May 11, 1962 and February 14, 1979 3/ | DEFINITE PLAN REPORT: Submitted December 29, 1962	2.1 2/	3.4 2/	10/1/90

SUMMARIZED FINANCIAL DATA

Total Federal Obligations(Reclamation) 15/	$1,334,922,000	Allotments to September 30, 1989	$ 552,201,044
		Allotments for FY 1990	5,352,000
Net Property and Other Transfers:			
Federal Participation	7,467,502		
Non-Federal Participation Cash 4/	233,206,114	Allotments to Date	557,553,044
Non-Federal Participation Non-Cash (State)	36,581,719	Allotments Required for FY 1991	2,911,000
Adjustment 5/	-11,035,335		
Total to be Allocated	$1,621,142,000	Balance to Complete after FY 1991	$ 794,457,956

ALLOCATIONS 6/		REPAYMENT		AMOUNTS PER ACRE		
Irrigation	$1,320,880,000	Amount Repaid by:		Irrig. Invest/Acre	$2,266	Payment Capacity per Acre-Foot: $15 to $36
Power		Irrigators 8/	$1,216,260,000	Repayment of Investment per Acre:		
M&I	25,631,000	Power 9/	104,620,000			Annual Charges:
Recreation	3,475,000	M&I 9/	25,631,000	By Irrigators	2,086	0
F&WL		San Luis - State 10/	262,894,000	By Power Revenues	179	Construction $8.00 per acre-foot
Flood Control	2,558,000					
San Luis - State	262,894,000					
Other 7/	5,704,000	Nonreimbursable 11/	11,737,000			
Total	$1,621,142,000		$1,621,142,000			

STATUS OF REPAYMENT CONTRACT: Repayment contracts with Westlands Water District for water service and construction executed June 5, 1963, and April 1, 1965, respectively, both subject to amendment for service to a larger area. The execution of the amendatory contract is scheduled for April 1994 and may be subject to resolution between the Department of the Interior and the State of California on water quality issues in the Sacramento-San Joaquin Delta. 12/

STATUS OF NEPA COMPLIANCE: Environmental statement for cleanup and closure of the San Luis Drain and Kesterson Reservoir: draft was filed with the Environmental Protection Agency, April 30, 1986; final was filed with the Environmental Protection Agency, October 20, 1986. 13/

PROJECT DATA SHEET - 2
CENTRAL VALLEY PROJECT
SAN LUIS UNIT, CALIFORNIA

DESCRIPTION: This unit encompasses an area from near Los Banos on the west side of the San Joaquin Valley to about 30 miles southwest of Fresno. The unit will provide supplemental water to approximately 583,000 14/ acres and 26,500 acre-feet annually for municipal and industrial use. The unit will also provide recreation and flood control benefits.

OTHER INFORMATION: Funds to initiate preconstruction planning and construction were appropriated in FY 1961. Because of the need for additional appropriation cost ceiling, Public Law 95-46 authorized $31,050,000 to be appropriated for FY 1978 for continuation of construction of the Westlands Water District and San Luis Water District Distribution System and the San Luis Drain. The law also directed the Secretary of the Interior to establish a task force to review the management, organization, and operation of the San Luis Unit and to report the results to Congress no later than January 1, 1978. In early January the task force report was submitted to the House and Senate Appropriation Subcommittees of Public Works for Water and Power Development and Energy Research, the Senate Committee on Energy and Natural Resources, and the House Committee on Interior and Insular Affairs. On July 19, 1982, the Comptroller General issued decision B-198221 which stated that Public Law 95-46 funds were appropriated for obligation only in fiscal year 1978. Section 140 of Public Law 97-377, approved December 21, 1982, provides that Public Law 95-46 funds are henceforth available until expended. On June 17, 1986 the Solicitor issued Solicitor's Opinion M-36901 (Supplemental No. 1) which determined that the San Luis Drain can be constructed under the indexible cost ceiling in the San Luis Unit authorization act of
June 3, 1960, Public Law 86-488, and further held that more than 500,000 acres could be served from the Unit. On December 30, 1986, the United States District Court, in and for the Eastern District of California entered a Judgment in a lawsuit which resolves the Bureau's contract disputes with the Westlands Water District concerning the amount of Central Valley Project water to which they are entitled through December 31, 2008 and the rates it must pay for that water. In addition, on November 26, 1975, a lawsuit was filed by the Contra Costa Water District requesting that the United States be enjoined from executing a proposed amendatory water service contract with Westlands Water District until the provisions of Public Law 91-190 (National Environmental Policy Act) had been complied with. A stipulation entered into by the United States in the lawsuit required the completion of a supplemental Environmental Impact Statement by December 31, 1986, but the parties to that lawsuit are still negotiating a further amendment of that stipulation.

The integration of gravity and ground-water pumping system for the Westland District was determined to be unauthorized and subsequently deleted from the program except for expenditures to date of $77,167.

The discovery of high concentrations of selenium and other trace elements in the San Luis Drain and Kesterson Reservoir has necessitated expanding studies being conducted to develop and evaluate economically viable and environmentally sound alternatives for the containment and/or treatment and disposal of subsurface drainage water. These studies will define both interim and permanent solutions to the problem. On February 5, 1985, the State Water Resources Control Board directed the Bureau to submit a plan detailing actions it will take to clean up Kesterson Reservoir and to protect the wildlife of the area and waters of the State. On March 15, 1985, the Secretary of the Interior directed the Bureau to begin the process of closing the Kesterson Reservoir, to the disposal of agricultural drainage and of cleaning up the water and soil in the reservoir. Agricultural drainage water flows into Kesterson Reservoir were terminated by June 30, 1986. On July 5, 1985, the Bureau submitted a framework plan to the State Water Resources Control Board for responding to the conditions at Kesterson. On August 22, 1985, the State Board directed the Bureau to develop a detailed Closure and Post Closure Maintenance Plan by December 1, 1986, with implementation of the plan to occur by February 5, 1988. The Bureau submitted the required plan. On March 19, 1987, the State Board issued Order No. WQ 87-3 which directed the Bureau to implement an onsite disposal plan. The Board Order further required the Bureau to prepare and submit a Report of Waste Discharge to the Regional Water Quality Control Board (Central Valley), which was submitted on May 18, 1987. The Regional Board issued waste discharge requirements on August 14, 1987, for the closure of Kesterson Reservoir and the disposal of residual contaminated materials at an onsite landfill facility. On December 14, 1987, a solicitation for bids and construction specifications for Kesterson cleanup were issued. Bid opening for Kesterson cleanup was held March 7, 1988. On March 22, 1988, the Secretary of the Interior informed the Regional Water Quality Control Board of Congressional concerns for the funding of onsite disposal. On April 15, 1988, the Bureau filed a petition with the State Board requesting a hearing for reconsideration of onsite disposal. On May 13, 1988, the long-term mitigation plan was transmitted to the Regional Board and on May 16, 1988, the recommended cleanup plan was transmitted to the State Board. On May 24 and 25, 1988, the State Board held evidentiary hearings to reconsider the cleanup strategy. On July 5, 1988, the State Board approved revised cleanup Order No. WQ 88-7 for filling of ephemeral ponds and other actions. On July 6, 1988, a contract was awarded to Dutra Construction to fill the ephemeral pool areas. This contract was substantially completed on November 16, 1988. A report on the viability of volatilization was submitted to the State Board on December 1, 1988. A final cleanup plan was submitted to the State Water Resources Control Board on April 1, 1989. Evidentiary hearings on the final cleanup plan were held on June 28, 1989. The Kesterson Mitigation Plan was submitted to the California Water Quality Board on November 27, 1989.

The Arroyo Pasajero, located in Fresno County, is a dry wash which drains the four streams of the Coalinga stream group. Flood waters from the stream group travel to the San Luis Canal where they are ponded. The ponding area adjacent to the canal has proven inadequate because of a much larger volume of flood waters and sediments than originally anticipated. Large concentrations of asbestos have been discovered within the flood waters and sediments of the ponding area originating from naturally erosive deposits in the upper watershed and from abandoned asbestos mines which are currently listed on the Environmental Protection Agency Superfund List. When the ponding area drys out after floods the presence of asbestos presents a hazard of becoming airborne during farming operations and from natural wind patterns. A feasibility study is currently being conducted jointly with the California Department of Water Resources, with 55 percent State and 45 percent Federal funding.

PROJECT DATA SHEET - 4
CENTRAL VALLEY PROJECT
SAN LUIS UNIT, CALIFORNIA

Footnotes:

1/ Facilities to serve 509,232 acres are complete and in operation as of September 30, 1985. Remaining construction will require about 6 years after distribution and drainage system is reauthorized to provide additional appropriation ceiling, authority for increasing the service area, and other required authorizations. Percent complete has been reduced due to the addition of the construction phase for the asbestos problems at Arroyo Pasajero.

2/ Direct and total irrigation benefits increased from those presented in the FY 1990 Budget Justifications due to a higher estimated benefit per acre-foot. Municipal and industrial benefits increased due to revised estimates in the cost of the single purpose alternative. Benefits for recreation and area redevelopment increased due to indexing. The direct benefit-cost ratio increased to 2.1 and the total benefit-cost ratio remained unchanged at 3.4. The ratios were computed by using the authorized interest rate of 2-7/8 percent.

3/ Certification of land classification below elevation 470 made by Secretary on May 11, 1962, and above elevation 470 on February 14, 1979.

4/ Includes $225,096,627 from the State of California for San Luis joint facilities and $8,109,487 from Westlands Water District for distribution system construction.

5/ Adjustment subtracts $8,382,000 representing the cost of the inlet to the Pacheco Tunnel which was built concurrently with the San Luis Reservoir and included in the San Luis Unit fund allotment. The tunnel is a feature of the San Felipe Division and the costs have been transferred to that division. Also deducted is $2,653,002 for purchase of Pacific Gas and Electric Company wheeling for the San Luis Unit which has now been transferred to the Department of Energy. An amount of $333 is subtracted for rounding. Per instructions in a letter from the Acting Assistant Commissioner dated June 17, 1955, Subject: Interest Charges - Central Valley Project, California, no interest during construction on municipal and industrial water facilities is to be computed for the San Luis Unit.

Footnotes: (continued)

6/ The methodology of cost allocation has not changed. An explanation of the changes in allocations between fiscal year 1990 and fiscal year 1991 is as follows:

Allocations	FY 1990 estimate	FY 1991 estimate
Irrigation	$1,308,735,000	$1,320,880,000
Municipal and Industrial Water	20,708,000	25,631,000
Recreation	3,475,000	3,475,000
Fish and Wildlife	---	---
Flood Control	2,558,000	2,558,000
San Luis - State	201,695,000	262,894,000
Other	8,030,000	5,704,000
Total	$1,545,201,000	$1,621,142,000

Explanation	Amount of change
Cost indexing (October 1989 to October 1990)	$ +7,543,000
Changes in estimates or quantities: reestimate of facilities and noncontract costs supporting Arroyo Pasajero, and microwave link at O'Neill Pumping Plant, transferring cleanup of Kesterson Reservoir to Operation and Maintenance program, reduction in the San Joaquin Valley drainage program due to completion in fiscal year 1990	+55,222,000
New item: Long-term San Joaquin drainage plan	+3,210,000
Land and rights: Arroyo Pasajero and purchase of Basalt Hill quarry property	+9,966,000
Total	$ +75,941,000

PROJECT DATA SHEET - 6
CENTRAL VALLEY PROJECT
SAN LUIS UNIT, CALIFORNIA

Footnotes: (continued)

The irrigation allocation increased primarily due to increased costs associated with San Luis Canal; this increase is partially offset by a decrease in estimated costs for San Luis Drain and a decreased allocation of costs to this function as a result of revised factors used in allocating water supply costs. The increase in the municipal and industrial (M&I) water allocation is primarily due to increased costs of facilities with an allocation to M&I and to a redistribution of water supply costs resulting from revised factors used in allocating these costs. The allocation to Other decreased due to decreased waterfowl conservation costs resulting from revised factors used in allocating these costs.

7/ Includes nonreimbursable costs of $1,383,000 for construction of highway improvements (Public Law 87-874, as amended by Public Law 93-251); wildlife refuge, $1,076,000; waterfowl conservation, $2,245,000; and $1,000,000 for cultural resources activities (Public Law 93-291).

8/ Of this amount, an estimated $661,182,000 is covered by existing water-service and repayment contracts. The remaining $555,078,000 is anticipated to be repaid by future contracts and increases in existing water rates based on the most recent authorized project repayment studies.

9/ Public Law 99-500 (October 18, 1986) included a provision which amends the San Luis Unit, CVP, authorization (Act of June 3, 1960, Public Law 86-488). This amendment provides that none of the costs associated with the construction of any distribution systems or drains, including the San Luis interceptor drain or any alternatives to it, will be recovered, either directly or indirectly by the Secretary of the Interior from power contractors of the CVP. The power aid to irrigation is in compliance with this directive in that costs of distribution systems and drains have been excluded.

10/ The amount shown is the total estimated share of San Luis joint facility costs to be repaid by the State of California.

11/ Includes nonreimbursable flood control, $2,558,000; recreation, $3,475,000; construction of highways to higher standards (Public Law 87-874), $1,383,000; wildlife refuge, $1,076,000; waterfowl conservation, $2,245,000; and for cultural resources activities, $1,000,000.

12/ The existing 1965 repayment contract with the Westlands Water District covers expenditures up to $157,048,000. The District's Board of Directors has also adopted a resolution pledging to repay costs of work authorized under Public Law 95-46 covering $30,140,000 more. Negotiations have been completed for an amendatory contract that would increase the repayment contract to an amount sufficient to repay all costs of the distribution and drainage collector system and a proportionate share of the costs of San Luis Drain. However, the District has requested that these negotiations be reopened to increase the size of the area to be provided drainage and to ensure completion of the San

Footnotes: (continued)

Luis Drain to a point of discharge. On December 30, 1986, the United States District Court in and for the Eastern District of California entered a Judgment in Westlands Water District's lawsuit and the related lawsuit which had been partially consolidated with the District's lawsuit. That Judgment resolves our contract disputes with the District without amending either the District's 1963 water service contract or its 1965 repayment contract. Upon completion of the necessary environmental documentation, and conclusion of the Contra Costa litigation, we will resume negotiations of a long-term contract to provide an additional 250,000 acre-feet of water each year to the District. Negotiations for a supplemental or amendatory repayment contract will be initiated after the drainage needs and solutions have been identified. The discovery of high concentration of selenium and other trace elements in the San Luis Drain and Kesterson Reservoir has necessitated expanding studies being conducted to obtain a discharge permit from the State of California and to complete the supplemental EIS.

13/ Projectwide final environmental statement was filed with Council on Environmental Quality October 4, 1972. Draft supplement to final for San Luis Unit filed with the Environmental Protection Agency July 30, 1979. Pursuant to a Regional Water Quality Control Board order, Reclamation is currently monitoring a process that reduces selenium concentrations. Reclamation submitted a proposed long-term mitigation plan to the Regional Water Quality Control Board on December 15, 1989.

14/ This figure includes all irrigable acres currently within Westlands Water District in accordance with Solicitor's Opinion M-36901 (supp. 1) dated June 17, 1986, which holds, in part, that the act of June 3, 1960, authorizes the Secretary of the Interior to construct, operate, and maintain the San Luis Unit, Central Valley Project, and accords the Secretary reasonable administrative discretion with regard to the size of the Federal San Luis Unit service area.

15/ The appropriations authorized for the Federal and the joint-use facilities of the San Luis Unit are $560,196,000 (October 1990). The comparable Federal obligation is $1,036,494,784, which exceeds the ceiling by more than the amount of contingencies included in the obligation. Appropriate congressional committees will be advised of the ceiling status for the project. Legislation to provide additional appropriation ceiling would be needed to complete the project as authorized. Current commitments will be held within the existing ceiling.

Appropriations authorized for the San Luis Unit Distribution and Drainage System are $252,970,311. The comparable Federal obligation is $332,068,167, which exceeds the ceiling by more than the amount of contingencies included in the obligation. Appropriate congressional committees have been advised of the ceiling status for this project. Legislation to provide additional appropriation ceiling would be needed to complete the project as authorized. Current commitments will be held within the existing ceiling.

PHYSICAL DATA ON STRUCTURES - 8
CENTRAL VALLEY PROJECT
SAN LUIS UNIT, CALIFORNIA

STATE-FEDERAL FACILITIES

COMPLETED WORK:

San Luis Dam and Reservoir

Dam:
Type - Earthfill
Structural Height - 382 feet
Crest Length - 18,600 feet
Base Width - 2,420 feet

Spillway:
Type - Concrete morning-glory inlet, concrete conduit, concrete chute, concrete stilling basin, and outlet channel.
Design Discharge - 1,030 cubic feet per second

Reservoir Capacity:
Total Storage - 2,041,000 acre-feet

San Luis Pumping-Generating Plant

Eight vertical-shaft, dual-purpose pump-generator units
Pump rated capacity, each: 1,375 cubic feet per second at 290 feet of head
Generator ratings, each: 53,000 Kilovolt amperes at 150 revolutions per minute, 34,000 kilovolt amperes at 120 revolutions per minute

O'Neill Dam, Forebay and Wasteway

Dam:
Type - Earthfill
Structural Height - 87 feet
Crest Length - 14,350 feet
Base Width - 382 feet

Spillway:
Type - Concrete morning-glory inlet, concrete conduit, concrete chute, concrete stilling basin, and outlet channel.

Reservoir Capacity:
Total Storage: 56,000 acre-feet

Dos Amigos Pumping Plant

Number of Units: six vertical-shaft pumps
Rated Pump Capacity, each: 2,200 cubic feet per second at a head of 125 feet.
Range of Heads: 107 to 125 feet

PHYSICAL DATA ON STRUCTURES - 9
CENTRAL VALLEY PROJECT
SAN LUIS UNIT, CALIFORNIA

Channels, Levees, and Floodworks

Los Banos Detention Dam and Reservoir

Dam:
Type - Earthfill
Structural Height - 167 feet
Crest Length - 1,370 feet
Base Width - 384 feet

Spillway:
Type - Uncontrolled ogee crest, chute, and stilling basin
Design Discharge - 8,600 cubic feet per second

Reservoir Capacity:
Total Storage - 34,600 acre-feet

Little Panoche Detention Dam and Reservoir

Dam:
Type - Earthfill
Structural height - 151 feet
Crest Length - 1,440 feet

Spillway:
Type - Morning-glory-type inlet structure conduit through dam, and stilling basin.
Design Discharge - 18,300 cubic feet per second

Reservoir Capacity:
Total Storage - 5,580 acre-feet

CONSTRUCTION PROGRAM:

San Luis Canal

Length - 102.5 miles; capacity - 13,100 to 8,350 cubic feet per second; bottom width - 100 to 50 feet; water depth - 21.1 to 32.8 feet

FEDERAL FACILITIES

COMPLETED WORK:

Pleasant Valley Pumping Plant

Nine vertical-shaft pumps - total capacity 1,185 cubic feet per second at 195 feet of head

PHYSICAL DATA ON STRUCTURES - 10
CENTRAL VALLEY PROJECT
SAN LUIS UNIT, CALIFORNIA

O'Neill Pumping Plant (Serves both as pumping and generating plant)

Six vertical-shaft, dual-purpose pump-generator units
Generator rating, each - 4,200 kilovolt amperes at 200 revolutions per minute
Pump Rated Capacity, each - 700 cubic feet per second at 36 feet of head

Coalinga Canal and Pump Intake

Length - 13.4 Miles; Capacity - 725 to 1,140 cubic feet per second; Bottom Width - 12 feet; Water Depth - 9.3 to 11.8 feet

San Luis Drain

Drain:
Length - 188 Miles; Capacity - 100 to 450 cubic feet per second; Bottom Width - 10 feet; Water Depth - 6.3 to 9.7 feet.

Holding Reservoirs:

Kesterson	Dos Palos	Oakley
Capacity - 4,700 acre-feet	Capacity - 11,700 acre-feet	Capacity - 800 acre-feet
Type - Series of earth dikes	Type - Series of earth dikes	Type - Earth dikes, plastic lined

Chipps Island Pipeline

Length - 14.7 miles; Diameter Size - 108 inches; Capacity - 450 cubic feet per second

Oakley Pumping Plant

Seven vertical turbine units - total capacity of 450 cubic feet per second at 167 feet of head

PHYSICAL DATA ON STRUCTURES - 11
CENTRAL VALLEY PROJECT
SAN LUIS UNIT, CALIFORNIA

DISTRIBUTION AND DRAINAGE SYSTEMS

Westlands Water District Distribution System

Distribution System

Type of System - Closed pipe. Buried a minimum of 4 feet

Miles of Pipe - 1,204 miles

Size of Pipe - 10 inches to 96 inches round

Drainage Collection System

Ultimate area to be drained - 300,000 acres

Initially - 127,933 acres

Carrier Pipelines (Closed Joint Pipe) - Miles of Pipe - 160 Size of Pipe - 15 inches to 48 inches round

Collector Pipelines (Open Joint Pipe) - Miles of Pipe - 930 Size of Pipe - 10 inches to 24 inches round

Land and Rights

Quantity - 64,770 acres

Total Estimated Cost - $86,427,803 1/

Cost Per Acre - $1,334 1/

Acquisition - 28 percent complete as of September 30, 1989.

Relocation

Total Estimated Cost - $15,318,000 2/

Percent Complete - 85 percent as of September 30, 1989

1/ Decrease from FY 1990 Budget Justifications due to indexing factors for land and rights applied to the northern California area.

2/ Increased from the fiscal year 1990 Budget Justifications due to indexing.

PHYSICAL DATA ON STRUCTURES - 12
CENTRAL VALLEY PROJECT
SAN LUIS UNIT, CALIFORNIA

Items:	Length (mile)	Total cost	Cost to September 30, 1989
Highways and Detours			
Relocated Highway 152	12.4	$9,389,251	$9,389,251
Reservoir Detour	3.0	450,985	450,985
County Road Relocations			
Little Panoche Creek Dam	2.0	256,933	256,933
San Luis Canal	1.8	68,559	68,559
San Luis Drain Relocations	Various	874,000	280,350
Other Relocations			
Transmission and Telegraph Lines	67.2	923,717	923,717
Gas and Oil Lines		1,418,134	1,418,134
Southern Pacific Railroad - Reach 5	12.0	131,785	131,785
Westlands Water District Distribution and Drainage System	Various	1,804,636	162,305
TOTAL		$15,318,000	$13,082,019

REGION: Mid-Pacific	PROJECT DATA SHEET			
PROJECT AND STATE: CENTRAL VALLEY PROJECT, TRINITY RIVER RESTORATION PROGRAM, CALIFORNIA		Completion Date 1995 1/	% Complete 95	Date 1/31/90
AUTHORIZATION: Public Law 84-386, August 12, 1955; Public Law 96-335, September 4, 1980; Public Law 98-541, October 24, 1984		BENEFIT COST RATIOS Based on Direct Benefits	Based on Total Benefits	Date
LAND CERTIFICATION: None required	DEFINITE PLAN REPORT: None required	2/	2/	10/1/90

SUMMARIZED FINANCIAL DATA

Total Federal Obligations(Reclamation) 12/	$ 302,742,000	Allotments to September 30, 1989	$ 263,845,032
Total Federal Obligations (Dept. of Energy)	42,769,000	Allotments for FY 1990	10,740,000
Net Property and Other Transfers:			
Federal Participation	1,035,000		
Non-Federal Participation		Allotments to Date	274,585,032
Adjustment 3/	11,353,000	Allotments Required for FY 1991	7,362,000
Total to be Allocated	$ 357,899,000	Balance to Complete after FY 1991	$ 20,794,968

ALLOCATIONS 4/		REPAYMENT 8/		AMOUNTS PER ACRE		
Irrigation	$ 108,558,000	Amount Repaid by:		Irrig. Invest/Acre	$9,350	Payment Capacity per
Power	163,502,000	Irrigators	$ 99,893,000	Repayment of Invest-		Acre-Foot:
M&I	21,368,000	Power 9/	172,167,000	ment per Acre:		Annual Charges:
Recreation 5/	611,000	M&I 9/	21,368,000	By Irrigators	8,604	O&M
F&WL 6/	36,749,000	State-County	9,025,000	By Power		Construction
Flood Control	16,544,000	Local Interests		Revenues	746	
Navigation	1,542,000	Deferred Use				
State-County 7/	9,025,000					
Other		Nonreimbursable 10/	55,446,000			
Total	$ 357,899,000		$357,899,000			

STATUS OF REPAYMENT CONTRACT: The State of California and Trinity and Humboldt Counties have agreed to repay 15 percent of appropriated amounts. Fifty percent of appropriated amounts is to be repaid by water and power users of Central Valley Project water via existing or future water service contracts. Repayment assurance by the State of California was received September 1, 1985.

STATUS OF NEPA COMPLIANCE: Grass Valley Creek Debris Dam Final Environmental Statement was filed with the Environmental Protection Agency on August 18, 1986. 11/

PROJECT DATA SHEET - 2
CENTRAL VALLEY PROJECT
TRINITY RIVER RESTORATION PROGRAM, CALIFORNIA

DESCRIPTION: This division is located in northwestern California in Trinity and Humboldt Counties. Facilities constructed under the Trinity River Act (Public Law 84-386) provides supplemental water to 11,610 acres, 4,810 acre-feet annually for municipal and industrial use and generation of 397,350 kilowatts of hydroelectric power. The purpose of the restoration program is to restore the fish and wildlife populations in the Trinity River to the levels approximating that which existed immediately before the start of construction of the Trinity River Division of the Central Valley Project in California.

OTHER INFORMATION: Public Law 84-386 authorized the construction of Trinity River Division. Public Law 96-335 authorized construction of sediment control facilities on Grass Valley Creek, a tributary to the Trinity River, which is to include a debris dam and a sand dredging system. Facilities for sediment control are set forth in the plan of development described in the Grass Valley Creek Sediment Control Study, April 1978, prepared for the Trinity River Basin Fish and Wildlife Task Force as part of the Trinity River Basin Comprehensive Action Program. Public Law 98-541 authorized the Trinity River Fish and Wildlife Management Program based on a March 1982 report bearing the same title. This program is to provide for the restoration of the fish and wildlife in the Trinity River Basin. Public Law 98-541 also set forth cost-sharing stipulations for the management program and included Grass Valley Creek activities in the cost sharing thereby amending Public Law 96-335 which provided that all costs for construction of the debris dam would be nonreimbursable. Currently, the Trinity River Division, the Grass Valley Creek Debris Dam and the Trinity River Fish and Wildlife Management Program are under separate appropriation ceilings.

Footnotes:

1/ Construction of the Trinity Fish Hatchery Modification and the Grass Valley Creek Debris Dam are scheduled for completion in fiscal year 1990. The Cottonwood-Elverta No. 3 Transmission Line to be constructed by the Department of Energy is scheduled for completion in fiscal year 1991. The Trinity River Fish and Wildlife Management Program is scheduled for completion in fiscal year 1995.

2/ Benefit-cost analysis cannot be applied directly to measures proposed in the restoration program because a reliable method does not exist for estimating cash value of environmental and social benefits. Also, increased numbers of fish in the Trinity River attributable directly to reduction of sediment, riffle reconstruction and other methods of habitat augmentation cannot be accurately predicted.

PROJECT DATA SHEET - 3
CENTRAL VALLEY PROJECT
TRINITY RIVER RESTORATION PROGRAM, CALIFORNIA

Footnotes: (continued)

3/ Includes interest during construction of $11,353,000 which increased due to an adjusted interest rate (from authorized rate to repayment rate) used in calculating interest during construction.

4/ The methodology of cost allocation has not changed. An explanation of the changes in allocations between fiscal year 1990 and fiscal year 1991 is as follows:

Allocation	FY 1990 estimates	FY 1991 estimates
Irrigation	$ 108,388,000	$ 108,558,000
Power	161,118,000	163,502,000
M&I Water	20,113,000	21,368,000
Recreation	611,000	611,000
Fish and Wildlife	35,668,000	36,749,000
Flood Control	16,544,000	16,544,000
Navigation	1,542,000	1,542,000
State and County 8/	8,555,000	9,025,000
Total	$ 352,539,000	$ 357,899,000

Explanation	Amount of Change
Cost indexing (October 1989 to October 1990)	+348,000
Changes in quantities and estimates: Reestimate of noncontract and minor costs for Trinity River Fish and Wildlife management program, miscellaneous adjustment	+768,000
Changes in contractor earnings: Construction of freezer buildings; Phase I of the hatchery modification; Grass Valley Creek Debris Dam; Rush Creek rehabilitation	+338,000
Land and rights: Purchase of land for Grass Valley Debris Dam	+182,000
Interest during construction	+2,224,000
Contract award: Monitoring weir on Trinity River	+1,500,000
Total	$ +5,360,000

PROJECT DATA SHEET - 4
CENTRAL VALLEY PROJECT
TRINITY RIVER RESTORATION PROGRAM, CALIFORNIA

Footnotes: (continued)

5/ Represents nonreimbursable recreation.

6/ Includes the following nonreimbursable costs: fish and wildlife enhancement, $2,412,000; fish and wildlife mitigation, $31,954,000; wildlife refuge, $661,000; waterfowl conservation, $1,722,000 in accordance with Public Law 95-616, November 18, 1978, whereby water provided by the Central Valley Project for waterfowl conservation shall not be reimbursable or returnable under Federal Reclamation Laws.

7/ Public Law 98-451 specifically provided that 15 percent of the restoration program be allocated to State and county and this amount be reimbursed to the United States Treasury as the funds are expended by the Bureau of Reclamation.

8/ Repayment by irrigators, power users, and municipal and industrial water users includes an amount attributed to repayment of the Trinity River Restoration Program as directed by Public Law 98-541.

9/ Due to operational and financial integration, repayment by the power function, including aid to irrigation, and the municipal and industrial water function is appropriately determined only in the composite repayment analysis of the total authorized Central Valley Project. To illustrate repayment for this unit, part of the net revenues from power available for repayment of the total project is shown. See the Project Data Sheet of the Central Valley Project for the repayment analysis of these functions.

10/ Includes fish and wildlife enhancement, $2,412,000; fish and wildlife mitigation, $31,954,000, flood control, $16,544,000; navigation, $1,542,000; recreation, $611,000; waterfowl conservation, $1,722,000; wildlife refuge, $661,000.

11/ A Categorical Exclusion checklist for the Trinity Fish Hatchery was completed on October 6, 1983.

12/ Appropriations authorized for the Trinity River Division (Public Laws 84-386, 96-335, 98-541) are $321,514,000 (October 1990). This authorization is adequate to cover the construction of these facilities as currently proposed.

Appropriation Title: Construction Program

FISCAL YEAR 1991

Work Proposed	Program
Auburn-Folsom South Unit:	
Auburn Area Facilities:	
Auburn Dam and Reservoir. - Processing water rights applications and miscellaneous agreements with state and local agencies for management of project lands, and providing fire protection and seismograph work will continue.	$1,500,000
Subtotal - Auburn-Folsom South Unit	$1,500,000
Miscellaneous Project Programs:	
Suisun Marsh Protection. - Represents Federal share in the construction by the State of California of facilities for the protection and preservation of Suisun Marsh as provided by Public Law 99-546.	$1,900,000
Other Project Costs. - Provides for continuation of Delta Support Studies.	$500,000
Subtotal - Miscellaneous Project Programs	$ 2,400,000
Sacramento River Division:	
Other Project Costs. - The contracts for the Red Bluff Diversion Dam fish ladder and the Tehama-Colusa fish facilities dual purpose channel barrier will be awarded. Deer fencing along the Tehama-Colusa Canal will continue.	$3,866,000
Subtotal - Sacramento River Division	$3,866,000

Appropriation Title: Construction Program

FISCAL YEAR 1991

Work Proposed (continued)	Program
San Felipe Division:	
Santa Clara Tunnel and Conduit. - Provides for payment of completed work on the Santa Clara Tunnel, Section 2.	$1,415,000
Watsonville Facilities. - The feasibility study will continue.	300,000
Subtotal - San Felipe Division	$1,715,000
San Luis Unit:	
Joint State-Federal Facilities:	
San Luis Canal. - Contract will be awarded for construction of facilities for the solution to flooding problems at Arroyo Pasajero, and acquisition of land for disposal of sediment will continue.	$3,767,000
Federal Facilities:	
San Luis Drain. - The long-term San Joaquin Valley drainage plan will continue.	1,216,000
Non-Federal Participation. - State of California cash contribution.	-2,072,000
Subtotal - San Luis Unit	$2,911,000
Trinity River Restoration Program:	
Trinity River Fish and Wildlife Management Program. - Contract will be awarded for a monitoring weir on the Trinity River. Construction activities will continue for rehabilitation of the main river, tributaries, watersheds, artificial propagation, wildlife habitat and land use evaluation.	$7,312,000
Service Facilities, Depreciation and Salvage. - Provides for purchase of office equipment, materials, supplies and services.	50,000
Subtotal - Trinity River Restoration Program	$ 7,362,000

AUBURN-FOLSOM SOUTH UNIT, CVP
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1 * CONSTRUCTION COSTS						
2 ** AUBURN AREA FACILITIES						
3 *** 8000 AUBURN DAM AND RESERVOIR						
4		1,603,398,000	221,255,901	1,693,607	1,500,000	1,378,948,492
5 *** 8010 AUBURN POWERPLANT						
6		153,596,000	8,372,852			145,223,148
7 *** 8090 RECREATION FACILITIES						
8		16,747,000	5,668,737			11,078,263
9 *** 8130 PERMANENT OPER FACILITIES						
10		3,470,000	36,167			3,433,833
11 *** 8110 FISH AND WILDLIFE LANDS						
12		915,000	330,345			584,655
13 ** AUBURN AREA FACILITIES		1,778,126,000	235,664,002	1,693,607	1,500,000	1,539,268,391
14 ** FORESTHILL DIVIDE AREA						
15		68,947,322	68,947,322			
16 ** FOLSOM SOUTH AREA FACILITIES						
17 *** FOLSOM SOUTH CANAL						
18		155,619,000	39,392,741			116,226,259
19 *** ALL OTHER FACILITIES						
20		162,512,000	346,814			162,165,186
21 ** FOLSOM SOUTH AREA FACILITIES		318,131,000	39,739,555			278,391,445
22 ** SERV FACIL, DEPREC, SALVAGE						
23			910,163			910,163-
24 * CONSTRUCTION COSTS		2,165,204,322	345,261,042	1,693,607	1,500,000	1,816,749,673
25 * OTHER PROJECT COSTS						
26		292,665	292,665			
27 TOTAL PROGRAM COST		2,165,496,987	345,553,707	1,693,607	1,500,000	1,816,749,673
28 OTHER CONSOL. EXPEND & CREDIT		1,455,987-	960,093-			495,894-
29 TOTAL EXPENDITURES		2,164,041,000	344,593,614	1,693,607	1,500,000	1,816,253,779

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AUBURN-FOLSOM SOUTH UNIT, CVP
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1 TOTAL FEDERAL EXPENDITURES		2,164,041,000	344,593,614	1,693,607	1,500,000	1,816,253,779
2 TOTAL RECLAMATION EXPENDITURES		2,164,041,000	344,593,614	1,693,607	1,500,000	1,816,253,779
3 UNDELIVERED ORDERS			17,607	17,607-		
4 TOTAL RECLAMATION OBLIGATIONS		2,164,041,000	344,611,221	1,676,000	1,500,000	1,816,253,779
5 TOTAL FUNDED OBLIGATIONS		2,164,041,000	344,611,221	1,676,000	1,500,000	1,816,253,779
6 METHOD OF FINANCING						
7 APPROPRIATION AVAILABLE & REQD				1,676,000	1,500,000	1,816,253,779

MISC PROJECT PROGRAMS, CVP
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1 * CONSTRUCTION COST						
2 ** DELTA DIVISION						
3 *** COMPLETED WORK	1					
4		119,833,012	119,833,012			
5 ** DELTA DIVISION		119,833,012	119,833,012			
6 ** FRIANT DIVISION						
7 *** COMPLETED WORK	2					
8		181,425,516	181,425,516			
9 ** FRIANT DIVISION		181,425,516	181,425,516			
10 ** SHASTA DIVISION						
11 *** COMPLETED WORK	3					
12		170,126,595	170,126,595			
13 *** SHASTA RES TEMPERATURE CONTROL						
14		49,999,405	863,997	800,000		48,335,408
15						
16						
17 ** SHASTA DIVISION		227,008,000	170,990,592	800,000		55,217,408
18 ** AMERICAN RIVER DIVISION						
19 *** COMPLETED WORK	4					
20		106,082,017	106,082,017			
21 *** EL DORADO DISTRIBUTION SYSTEM						
22		24,778,921	24,737,028			41,893
23 ** AMERICAN RIVER DIVISION		130,860,938	130,819,045			41,893
24 ** NEW MELONES PROJECT FACILITIES						
25		3,456,681	3,319,869	1,000		135,812
26 *** ALLEN CAMP UNIT						
27		1,113,012	1,113,012			
28 ** SUISUN MARSH PROTECTION						
29		50,000,000	25,883,674	5,048,000	1,900,000	17,168,326
30 ** PROJECT GENERAL						

MISC PROJECT PROGRAMS, CVP
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1 *** COMPLETED WORK	5					
2		11,818,559	11,818,559			
3 ** PROJECT GENERAL		11,818,559	11,813,559			
4 * CONSTRUCTION COST		725,515,718	645,203,279	5,849,000	1,900,000	72,563,439
5 * OTHER PROJECT COSTS						
6		9,940,000	5,161,564	1,900,000	500,000	2,378,436
7 TOTAL PROGRAM COST		735,455,718	650,364,843	7,749,000	2,400,000	74,941,875
8 OTHER CONSOL. EXPEND & CREDIT		16,539,718-	16,974,280-	516		434,046
9 TOTAL EXPENDITURES		718,916,000	633,390,563	7,749,516	2,400,000	75,375,921
10 NONFEDERAL CASH CONTRIBUTIONS		25,010,000-	10,000-			25,000,000-
11 TOTAL FEDERAL EXPENDITURES		693,906,000	633,380,563	7,749,516	2,400,000	50,375,921
12 TOTAL RECLAMATION EXPENDITURES		693,906,000	633,380,563	7,749,516	2,400,000	50,375,921
13 UNDELIVERED ORDERS			9,516	9,516-		
14 TOTAL RECLAMATION OBLIGATIONS		693,906,000	633,390,079	7,740,000	2,400,000	50,375,921
15 TOTAL FUNDED OBLIGATIONS		693,906,000	633,390,079	7,740,000	2,400,000	50,375,921
16 METHOD OF FINANCING						
17 APPROPRIATION AVAILABLE & REQD				7,740,000	2,400,000	50,375,921

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE

FOOTNOTES

* INCLUDES TOTALS FOR TRACY PUMPING PLANT AND INTAKE CHANNEL, DELTA CROSS CHANNEL, CONTRA COSTA WATER AND PLAINVIEW WATER DISTRIBUTION SYSTEMS, TRACY-CONTRA COSTA-CLAYTON YGNACIO SUBSTATION, TRACY SWITCHYARD, PERMANENT OPERATING FACILITIES, DELTA FISH PROTECTION FACILITIES, CONTRA COSTA CANAL SYSTEM, AND DELTA-MENDOTA CANAL.

* INCLUDES FRIANT DAM AND RESERVOIR, MADERA CANAL, MADERA DISTRIBUTION SYSTEM, FRIANT-KERN DISTRIBUTION SYSTEMS, AND PERMANENT OPERATING FACILITIES.

* INCLUDES SHASTA AND KESWICK DAMS AND THEIR ASSOCIATED POWER SYSTEMS AND PERMANENT OPERATING FACILITIES.

* INCLUDES TOTALS FOR FOLSOM DAM, RESERVOIR, AND POWER FACILITIES, SLY PARK DAM AND CONDUIT, NIMBUS FISH PROTECTIVE FACILITIES, AND PERMANENT OPERATING FACILITIES.

* INCLUDES TOTALS FOR RADIO NETWORK, WATERFOWL CONSERVATION, PERMANENT OPERATING FACILITIES, AND WATER RIGHTS.

SACRAMENTO RIVER DIVISION, CVP
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

	PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1	* CONSTRUCTION COSTS						
2	** COMPLETED WORK	1					
3			21,376,696	21,376,696			
4	** TEHAMA-COLUSA CANAL AND FACIL						
5			232,039,000	192,091,413	50,000		39,897,587
6	** TEHAMA-COLUSA CANAL DISTR SYST						
7			49,105,000	45,872,336			3,232,664
8	** 6070 TEHAMA-COLUSA FISH FACIL.						
9			22,409,000	22,019,597			389,403
10	** PERMANENT OPERATING FACILITIES						
11			7,045,380	7,045,380			
12	** SERVICE FACILITIES, DEP./SALV						
13				176,185			176,185-
14	* CONSTRUCTION COSTS		331,975,076	288,581,607	50,000		43,343,469
15	* OTHER PROJECT COSTS						
16			33,509,000	22,139,589	6,196,000	3,866,000	1,307,411
17	TOTAL PROGRAM COST		365,484,076	310,721,196	6,246,000	3,866,000	44,650,880
18	OTHER CONSOL. EXPEND & CREDIT		383,924	1,165,429	430		781,935-
19	TOTAL EXPENDITURES		365,868,000	311,886,625	6,246,430	3,866,000	43,868,945
20	TOTAL FEDERAL EXPENDITURES		365,868,000	311,886,625	6,246,430	3,866,000	43,868,945
21	TOTAL RECLAMATION EXPENDITURES		365,868,000	311,886,625	6,246,430	3,866,000	43,868,945
22	UNDELIVERED ORDERS			10,430	10,430-		
23	TOTAL RECLAMATION OBLIGATIONS		365,868,000	311,897,055	6,236,000	3,866,000	43,868,945
24	TOTAL FUNDED OBLIGATIONS		365,868,000	311,897,055	6,236,000	3,866,000	43,868,945

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                                SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991
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                                      N
                                      O                       TOTAL TO
          PROGRAM ITEM                T      ESTIMATED     SEPTEMBER 30         FY  1990          FY  1991            BALANCE
                                      E        TOTAL           1989             PROGRAM           PROGRAM           TO COMPLETE
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 1 METHOD OF FINANCING


 2     APPROPRIATION AVAILABLE & REQD                                          6,236,000         3,866,000         43,868,945

 3        F O O T N O T E S

 4  *  INCLUDES RED BLUFF DIVERSION DAM, CORNING CANAL AND
 5     FACILITIES, CORNING WATER DISTRICT DISTRIBUTION SYSTEM,
 6     RECREATION FACILITIES AND OPERATION AND MAINTENANCE HOUSING.
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SAN FELIPE DIVISION, CVP
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

	PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1	• CONSTRUCTION COST						
2	•• 6300 PACHECO TUNNEL						
3			83,237,625	83,237,625			
4	•• 6330 PACHECO PUMPING PLANT						
5			31,670,654	31,669,654	1,000		
6	•• 6310 SANTA CLARA TUNEL/CONDUIT						
7			76,564,543	74,398,543	751,000	1,415,000	
8	•• 6320 PACHECO CONDUIT						
9			32,643,984	32,643,984			
10	•• 6360 COYOTE PUMPING PLANT						
11			16,552,259	16,552,259			
12	•• 6380 HOLLISTER CONDUIT						
13			28,202,376	28,198,376	4,000		
14	•• 6500 SAN JUSTO DAM/RESERVOIR						
15			38,283,102	36,544,102	1,739,000		
16	•• 6570 SUPERVISORY CONTRL SYSTEM						
17			2,440,580	2,424,580	16,000		
18	•• WATSONVILLE FACILITIES						
19			47,608,000	604,915	100,000	300,000	46,603,085
20	•• 6530 WILDLIFE MITIGATION						
21			291,928	288,928	3,000		
22	•• 6540 PUBLIC USE FACILITIES						
23			586,233	585,233	1,000		
24	•• 6560 PERM OPERATING FACILITIES						
25			253,499	253,499			
26	•• 0028/29 SERV FACIL DEP AND SAL						
27				184,733			184,733-
28	• CONSTRUCTION COST		358,334,783	307,586,431	2,615,000	1,715,000	46,418,352
29	• OTHER PROJECT COSTS						
30			205,748	205,748			
31	TOTAL PROGRAM COST		358,540,531	307,792,179	2,615,000	1,715,000	46,418,352

SAN FELIPE DIVISION, CVP
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

	PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1	OTHER CONSOL. EXPEND & CREDIT		8,742,004-	8,450,549-	271		291,726-
2	TOTAL EXPENDITURES		349,798,527	299,341,630	2,615,271	1,715,000	46,126,626
3	NONFEDERAL CASH CONTRIBUTIONS		228,527-	228,527-			
4	TOTAL FEDERAL EXPENDITURES		349,570,000	299,113,103	2,615,271	1,715,000	46,126,626
5	TOTAL RECLAMATION EXPENDITURES		349,570,000	299,113,103	2,615,271	1,715,000	46,126,626
6	UNDELIVERED ORDERS			51,271	51,271-		
7	TOTAl RECLAMATION OBLIGATIONS		349,570,000	299,164,374	2,564,000	1,715,000	46,126,626
8	TOTAL FUNDED OBLIGATIONS		349,570,000	299,164,374	2,564,000	1,715,000	46,126,626
9	METHOD OF FINANCING						
10	APPROPRIATION AVAILABLE & REQD				2,564,000	1,715,000	46,126,626

SAN LUIS UNIT, CVP
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1 * CONSTRUCTION COST						
2 ** JOINT STATE-FEDERAL FACILITIES	1					
3 *** COMPLETED WORK	2					
4		114,028,080	114,028,080			
5 *** 9007 SAN LUIS DAM/RESERVOIR						
6		104,502,024	104,502,024			
7 *** SAN LUIS CANAL						
8		255,088,896	145,468,413	325,000	3,767,000	105,528,483
9 *** 9340 PERMANENT OPERATING FACIL						
10		7,760,000	7,225,528			534,472
11 ** JOINT STATE-FEDERAL FACILITIES		481,379,000	371,224,045	325,000	3,767,000	106,062,955
12 ** FEDERAL FACILITIES						
13 *** COMPLETED WORK	3					
14		20,922,483	20,922,483			
15 *** 9040 O'NEILL PUMPING PLANT						
16		10,872,054	10,858,054	14,000		
17 *** 9230 RELIFT PMP/WESTLANDS WD	*					
18		82,375,000	41,590,390			40,784,610
19 *** 9250 SAN LUIS CANAL TURNOUTS						
20		16,911,000	14,880,367			2,030,633
21 *** SAN LUIS DRAIN						
22		676,608,109	115,157,550	6,006,504	1,216,000	554,228,055
23 ** FEDERAL FACILITIES		807,688,646	203,408,844	6,020,504	1,216,000	597,043,298
24 ** WWD DISTRIB-DRAINAGE SYSTEMS						
25 *** 9350 WESTLANDS DISTRIB. SYSTEM						
26		253,444,000	160,237,059			93,206,941
27 *** 9360 DRAINAGE COLLECTOR SYSTEM						
28		78,547,000	19,725,941			58,821,059
29 *** INTEGRATE GRAVITY/GROUND WATER						
30		77,167	77,167			

SAN LUIS UNIT, CVP
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

	PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1	** WWD DISTRIB-DRAINAGE SYSTEMS		332,068,167	180,040,167			152,028,000
2	** SERVICE FACIL. DEPREC. SALVAGE						
3				1,021,871			1,021,871-
4	* CONSTRUCTION COST		1,621,135,813	755,694,927	6,345,504	4,983,000	854,112,382
5	* OTHER PROJECT COST						
6			6,851	6,851			
7	TOTAL PROGRAM COST		1,621,142,664	755,701,778	6,345,504	4,983,000	854,112,382
8	OTHER CONSOL. EXPEND & CREDIT		3,567,169	3,746,391	965		180,187-
9	TOTAL EXPENDITURES		1,624,709,833	759,448,169	6,346,469	4,983,000	853,932,195
10	NONFEDERAL CASH CONTRIBUTIONS		233,206,114-	172,511,114-	179,000-	2,072,000-	58,444,000-
11	NONFEDERAL NONCASH CONTRIBUTION		36,581,719-	35,551,480-			1,030,239-
12	TOTAL FEDERAL EXPENDITURES		1,354,922,000	551,385,575	6,167,469	2,911,000	794,457,956
13	TOTAL RECLAMATION EXPENDITURES		1,354,922,000	551,385,575	6,167,469	2,911,000	794,457,956
14	UNDELIVERED ORDERS			248,965	248,965-		
15	TOTAL RECLAMATION OBLIGATIONS		1,354,922,000	551,634,540	5,918,504	2,911,000	794,457,956
16	TOTAL FUNDED OBLIGATIONS		1,354,922,000	551,634,540	5,918,504	2,911,000	794,457,956
17	METHOD OF FINANCING						
18	APPLICATION OF PRIOR YEAR FUND				566,504		
19	APPROPRIATION AVAILABLE & REQD				5,352,000	2,911,000	794,457,956
20	NONFEDERAL PARTICIPATION				179,000	2,072,000	58,444,000

SAN LUIS UNIT, CVP
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE

FOOTNOTES

- ALL ITEMS IN JOINT STATE-FEDERAL FACILITIES ARE FUNDED 55 PERCENT STATE AND 45 PERCENT FEDERAL.

- COMPLETED WORK INCLUDES SAN LUIS PUMPING-GENERATING PLANT, O'NEILL DAM, FOREBAY AND WASTEWAY, SAN LUIS PUMPING-GENERATING PLANT SWITCHYARD, DOS AMIGOS PUMPING PLANT, DOS AMIGOS PUMPING PLANT SWITCHYARD, LOS BANOS DETENTION DAM AND RESERVOIR, LITTLE PANOCHE DETENTION DAM AND RESERVOIR, TEMPORARY CAMP, RECREATION AND FISH AND WILDLIFE FACILITIES, AND JOINT STATE-FEDERAL SERVICE FACILITIES, DEPRECIATION AND SALVAGE.

- INCLUDES O'NEILL PUMPING PLANT INTAKE CHANNEL, PLEASANT VALLEY PUMPING PLANT, O'NEILL PUMPING PLANT SWITCHYARD, MUNICIPAL AND INDUSTRIAL FACILITIES FOR HURON, FEDERAL PERMANENT OPERATING FACILITIES, COALINGA CANAL AND PUMP INTAKE.

TRINITY RIVER RESTORATION PRGM
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1 * CONSTRUCTION COST						
2 ** COMPLETED WORK	1					
3		243,606,814	243,606,814			
4 ** GRASS VALLEY CREEK DEBRIS DAM						
5		19,083,530	13,180,530	5,903,000		
6 ** TRINITY R F/WL MGMT PROGRAM						
7		33,896,000	2,271,072	4,508,165	7,312,000	19,804,763
8 ** TRINITY HATCHERY MODIFICATION						
9		7,189,837	5,498,837	1,691,000		
10 ** SERV FACIL. DEPREC. SALVAGE						
11			291,290	50,000	50,000	391,290-
12 * CONSTRUCTION COST		303,776,181	264,848,543	12,152,165	7,362,000	19,413,473
13 TOTAL PROGRAM COST		303,776,181	264,848,543	12,152,165	7,362,000	19,413,473
14 OTHER CONSOL. EXPEND & CREDIT		1,034,181-	1,046,727-	949-		13,495
15 TOTAL EXPENDITURES		302,742,000	263,801,816	12,151,216	7,362,000	19,426,968
16 TOTAL FEDERAL EXPENDITURES		302,742,000	263,801,816	12,151,216	7,362,000	19,426,968
17 TOTAL RECLAMATION EXPENDITURES		302,742,000	263,801,816	12,151,216	7,362,000	19,426,968
18 UNDELIVERED ORDERS			43,216	43,216-		
19 TOTAL RECLAMATION OBLIGATIONS		302,742,000	263,845,032	12,108,000	7,362,000	19,426,968
20 UNDERFINANCING				1,368,000-		1,368,000
21 TOTAL FUNDED OBLIGATIONS		302,742,000	263,845,032	10,740,000	7,362,000	20,794,968

TRINITY RIVER RESTORATION PRGM
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1 METHOD OF FINANCING						
2 APPROPRIATION AVAILABLE & REQD				10,740,000	7,362,000	20,794,968

3 F O O T N O T E S

4 * INCLUDES LEWSTON DIVERSION DAM, POWERPLANT AND FISH
5 FACILITIES, TRINITY DAM AND FACILITIES, WHISKEYTOWN DAM AND
6 RESERVOIR, CLEAR CREEK TUNNEL, SPRING CREEK POWER CONDUIT,
7 POWERPLANT AND DEBRIS DAM, TRINITY POWERPLANT, JUDGE FRANCIS
8 POWERHOUSE, RECREATION FACILITIES, PERMANENT OPERATING
9 FACILITIES, OPERATION AND MAINTENANCE HOUSING, IRRIGATION
10 DEVELOPMENT, AND TRINITY RIVER COMPREHENSIVE ACTION PROGRAM.

TOTAL FUNDED OBLIGATION	5,231,049,000	2,404,542,301	34,874,504	19,754,000	2,771,878,195
METHOD OF FINANCING					
Appropriation Available and Required			34,308,000	19,754,000	2,771,878,195
Application of Prior Year Funds			566,504		

REGION:
Upper Colorado

PROJECT DATA SHEET

PROJECT AND STATE: COLORADO RIVER BASIN SALINITY CONTROL PROJECT TITLE II - GRAND VALLEY UNIT, COLORADO	Completion Date 2003	% Complete 26	Date 1/31/90
AUTHORIZATION: Public Law 93-320, June 24, 1974; Public Law 98-569, October 30, 1984	BENEFIT COST RATIOS		
LAND CERTIFICATION: None required — DEFINITE PLAN REPORT: Stage I approved March 25, 1980 Stage II approved July 11, 1986	Based on Direct Benefits 1/	Based on Total Ben. 1/	Date 10/1/90

SUMMARIZED FINANCIAL DATA

Total Federal Obligations 4/ (Reclamation)	$263,854,000	Allotments to September 30, 1989	$ 69,521,958
Net Property and Other Transfers:		Allotments for FY 1990	7,594,000
Federal Participation	325,000	Allotments to Date	$ 77,115,958
Non-Federal Participation		Allotments Required for FY 1991	14,732,000
Adjustment			
Total to be Allocated	$264,179,000	Balance to Complete after FY 1991	$172,006,042

ALLOCATIONS 2/		REPAYMENT		AMOUNTS PER ACRE			
Irrigation		Amount Repaid by:		Irrig. Invest/Acre	____	Payment Capacity	
Power		Irrigators		Repayment of Investment per Acre:		per Acre	____
M&I Water		Power				Annual Charges:	
Recreation		M&I Water		By Irrigators		O&M	
F&WL		By Lower Colorado River Basin Development Fund 3/	$56,074,000	By Power Revenues		Construction	
Flood Control				By M&I Water Users			
Salinity Control	$264,179,000	By Upper Colorado River Basin Fund 3/	9,896,000				
Other		Nonreimbursable 3/	198,209,000				
Total	$264,179,000	Total	$264,179,000			Total	____

STATUS OF REPAYMENT CONTRACT: None required

STATUS OF NEPA COMPLIANCE: Projectwide - Negative determination for Grand Valley System Stage I made July 4, 1978. Stage II - draft environmental statement to Environmental Protection Agency - September 24, 1985, final May 23, 1986. Draft supplement to Stage II environmental statement scheduled to Environmental Protection Agency April 1990; final, May 1990.

DESCRIPTION: This unit is located in Mesa County in western Colorado at the confluence of the Gunnison and Colorado Rivers near Grand Junction. Irrigation in the entire valley area encompasses 70,500 acres, with 200 miles of canals and approximately 500 miles of laterals, most of which are earth lined. Much of the land has been irrigated for more than 50 years, and it is estimated that the Grand Valley contributes about 580,000 tons of salt annually to the Colorado River. Investigations indicated that lining canals, lining or piping laterals, rehabilitating or replacing canal and lateral structures, and constructing adequate measurement control devices could reduce the salt contribution 161,400 tons per year while the Irrigation Management Scheduling and on farm improvements should result in an additional reduction of 130,000 tons per year. Stage One consisted of concrete lining 6.8 miles of main canal and placing in pipe 30 miles of laterals on the Government

PROJECT DATA SHEET - 2
COLORADO RIVER BASIN SALINITY CONTROL PROJECT - TITLE II
GRAND VALLEY UNIT, COLORADO

DESCRIPTION: (Continued)

Highline Canal. Based upon the results of Stage One, Stage Two proposes to membrane line the remainder of the Government Highline Canal and place in pipe 110 miles of its associated Federal laterals. Stage Two also proposes to place in pipe 214 miles of laterals under the private irrigation systems.

Footnotes:

1/ Previous agreements with the Mexican Government concerning salinity control in the Colorado River and Public Law 93-320 authorizing Title I and Title II activities are based upon social and political justifications. Furthermore, in 1984, the Congress passed Public Law 98-569 requiring preference for construction be given to those projects that reduce salinity at the least cost. The cost effectiveness of this unit is measured in terms of annual cost for each milligram per liter (mg/L) of salinity reduction in the Colorado River at Imperial Dam. The annual equivalent cost of the unit is $17,494,000 at 5.625%. The annual removal of 161,400 tons of salt from the Colorado River at Grand Valley results in a salinity reduction at Imperial Dam of 14.7 mg/L. The annual cost per ton of salt removed is $108. The cost increase is due to an increase in annual equivalent costs, an increase in annual estimated operation, maintenance, and replacement costs, and a decrease of the estimated life of the facilities from 100 to 50 years. Current project costs are based on October 1990 projected price level.

2/ The methodology of cost allocation has not changed. Explanation of changes in allocations from FY 1990 Budget Justifications:

Allocation	FY 1990 estimate	FY 1991 estimate
Salinity Control	$255,907,000	$264,179,000

PROJECT DATA SHEET - 3
COLORADO RIVER BASIN SALINITY CONTROL PROJECT - TITLE II
GRAND VALLEY UNIT, COLORADO

Footnotes: (Continued)

Explanation	Amount of Change
Change in project plan	$+2,443,745
Refinement of project plan resulting from reanalysis of quantities and unit prices, noncontracts, and minor contracts on the Government Highline Canal, Government Highline Laterals, Grand Valley Laterals, Grand Valley Highline Laterals, Grand Valley Mainline Laterals, Independent Ranchmen's Laterals, Keifer Extension Laterals, Palisade Irrigation District Laterals, Mesa County Irrigation District Laterals, Orchard Mesa No. 1 Laterals and Orchard Mesa No. 2 Laterals	+6,067,255
Indexing Changes	- 214,000
Land	- 25,000
Total	$+8,272,000

3/ Public Law 93-320, section 205, states that 75 percent of the costs will be nonreimbursable. The other 25 percent is divided between the Lower Colorado River Basin Development Fund and the Upper Colorado River Basin Fund based on benefits to be derived by each basin from the use of water of improved quality, causes of salinity, and availability of revenues, provided that costs allocated to the upper basin shall not exceed 15 percent of the costs allocated to the Upper and Lower Basin Funds. The costs to which these percentages are applied do not include $300,000 of preauthorization investigation costs which are nonreimbursable pursuant to Public Law 92-149.

4/ Appropriations authorized are $287,554,000 (October 1990) for Title II of the Colorado River Basin Salinity Control Projects under Public Law 93-320. The comparable Federal obligation is $653,674,288, which exceeds the appropriation ceiling by more than the amount of contingencies included in the obligation. Appropriate congressional committees will be advised of the appropriation ceiling status for this project. Legislation to provide additional appropriation ceiling would be needed to complete the total project as authorized. Current estimated commitments will be held within the existing ceiling. The cost of the features of McElmo Creek Unit which were made a part of the Dolores Participating Project (CRSP) in P.L. 98-569 are included in the project cost ceiling.

The intent of Congress is to remove salt from the Colorado River in the most economical basis. Increments of authorized units may or may not be constructed depending upon the amount of salt needed to be removed as indicated in The Joint Evaluation Report of Interior and Agriculture.

COLORADO RIVER BASIN SALINITY CONTROL PROJECT - TITLE II
Grand Valley Unit, Colorado

PHYSICAL DATA ON STRUCTURES - 4

CONSTRUCTION PROGRAM:

Canals

Name	Length (miles)	Maximum capacity (cubic feet per second)
Government Highline Canal Stage 1	6.8	360
East Government Highline Canal	10.0	730
Middle Government Highline Canal	20.0	670
West Government Highline Canal	9.0	150

Laterals

Name	Length (miles)	Maximum capacity (cubic feet per second)
Government Highline Laterals Stage 1	30	50
Government Highline Laterals	110	40
Grand Valley Laterals	24	12
Grand Valley Highline Laterals	30	27
Grand Valley Mainline Laterals	46	29
Independent Ranchmen's Laterals	10	13
Keifer Extension Laterals	15	28
Palisade Irrigation Dist. Laterals	36	13
Mesa County Irr. District Laterals	19	9
Orchard Mesa No. 1 Laterals	22	23
Orchard Mesa No. 2 Laterals	12	7

Land and Rights:

Quantity - 5,448 acres 1/
Total Estimated Cost - $3,738,359 1/
Cost Per Acre - $686
Acquisition - 16 percent complete as of September 30, 1989

1/ Decreased due to reanalysis of land required for the project.

Appropriation Title: Construction Program

GRAND VALLEY UNIT, COLORADO - 5

FISCAL YEAR 1991

Work Proposed	Program
Grand Valley Canal System. - Provides for land purchases for the East Government Highline Canal and the Moss Screen near Cameo. Contracts will be awarded for the East Government Highline Canal, Stubb Ditch, and Moss Screen near Cameo. Preconstruction activities including design data collection, preparation of designs, hydrosalinity, and environmental investigations will be continued	$ 2,601,000
Grand Valley Unit Lateral System. - Provides for completion of West End Laterals (A55-57) and the Grand Valley Irrigation Company Phase 1 Demonstration Lateral. Refilling of the West End Government Highline Laterals will continue. Provides for land purchases and contract awards for Lateral A-41, Grand Valley Laterals, Grand Valley Highline Laterals, Keifer Extension Laterals, Palisade Irrigation District Laterals, and the Mesa County Irrigation District Laterals. Preconstruction activities including design data collection, preparation of designs, hydrosalinity, and environmental investigations will be continued. Negotiations for and continuation of various co-operative agreements will continue.	11,117,000
Wildlife Plan. - Provides for continued Stage 2 Wildlife Land Acquisition and completion of Wildlife Development on Stage 1. Stage 2 Wildlife Development will be initiated.	1,014,000
TOTAL	$14,732,000

R240

CRBSCP, GRAND VALLEY UNIT
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1 * CONSTRUCTION COSTS						
2 ** GRAND VALLEY CANAL SYATEM						
3		108,297,000	32,617,065	369,000	2,601,000	72,709,935
4 ** GRAND VALLEY UNIT LATERAL SYST						
5		148,055,000	33,966,010	7,097,000	11,117,000	95,874,990
6 ** WILDLIFE PLAN						
7		7,527,000	1,478,755	895,000	1,014,000	4,139,245
8 ** SERV FAC DEPR AND SALVAGE						
9			960,651	99,404-		861,247-
10 * CONSTRUCTION COSTS		263,879,000	69,022,481	8,261,596	14,732,000	171,862,923
11 * OTHER PROJECT COSTS						
12		300,000	300,000			
13 TOTAL PROGRAM COST		264,179,000	69,322,481	8,261,596	14,732,000	171,862,923
14 OTHER CONSOL. EXPEND & CREDIT		325,000-	468,119-			143,119
15 TOTAL EXPENDITURES		263,854,000	68,854,362	8,261,596	14,732,000	172,006,042
16 TOTAL FEDERAL EXPENDITURES		263,854,000	68,854,362	8,261,596	14,732,000	172,006,042
17 TOTAL RECLAMATION EXPENDITURES		263,854,000	68,854,362	8,261,596	14,732,000	172,006,042
18 UNDELIVERED ORDERS			478,596	478,596-		
19 TOTAL RECLAMATION OBLIGATIONS		263,854,000	69,332,958	7,783,000	14,732,000	172,006,042
20 TOTAL FUNDED OBLIGATIONS		263,854,000	69,332,958	7,783,000	14,732,000	172,006,042
1 METHOD OF FINANCING						
2 APPLICATION OF PRIOR YEAR FUND				189,000		
3 APPROPRIATION AVAILABLE & REQD				7,594,000	14,732,000	172,006,042

REGION: Upper Colorado	PROJECT DATA SHEET			
PROJECT AND STATE: COLORADO RIVER BASIN SALINITY CONTROL PROJECT TITLE II - LOWER GUNNISON BASIN UNIT, COLORADO		Completion Date 1/ 1994	% Complete 0	Date 1/31/90
AUTHORIZATION: Feasibility - P.L. 93-320 June 24, 1974 Construction - P.L. 98-569, Oct. 30, 1984		BENEFIT COST RATIOS		
		Based on Direct Benefits 2/	Based on Total Ben. . 2/	Date 10/1/90
LAND CERTIFICATION:	DEFINITE PLAN REPORT: Planning Report Approved 3/22/84 Final Preconstruction Report App. 8/13/87			

SUMMARIZED FINANCIAL DATA

Total Federal Obligations 6/ (Reclamation)	$169,338,000	Allotments to September 30, 1989	$ 274,581
		Allotments for FY 1990	2,466,000
Net Property and Other Transfers:			
Federal Participation	475,000	Allotments to Date	$ 2,740,581
Non-Federal Participation		Allotments Required for FY 1991	4,726,000
Adjustments 3/	862,000		
Total to be Allocated	$170,675,000	Balance to Complete after FY 1991	$161,871,419

ALLOCATIONS 4/		REPAYMENT		AMOUNTS PER ACRE			
Irrigation		Amount Repaid by:		Irrig. Invest/Acre		Payment Capacicy per Acre	
Power		Irrigators		Repayment of Investment per Acre:		Annual Charges:	
M&I Water		Power		By Irrigators		O&M	
Recreation		M&I Water		By Power Revenues		Construction	
F&WL				By M&I Water Users			
Flood Control		Lower Colorado River Basin Development Fund 5/	$43,401,000				
Salinity Control	$170,675,000	Upper Colorado River Basin Fund 5/	7,659,000				
Other		Nonreimbursable 5/	119,615,000				
Total	$170,675,000	Total	$170,675,000			Total	

STATUS OF REPAYMENT CONTRACT: O&M Agreement with the Uncompahgre Valley Water Users Association executed Feb. 24, 1987.

STATUS OF NEPA COMPLIANCE: FEIS filed with EPA February 10, 1984.

DESCRIPTION: This unit is located in west-central Colorado in Delta, Montrose and Ouray Counties. The project would help control salinity of the Colorado River at or below 1972 levels as measured at three locations on the river. The Lower Gunnison Basin Unit winter water flows contribute 74,000 tons of salt annually to the river. The approved plan would reduce the salinity by the total 74,000 tons, resulting in an annual benefit at Imperial Dam of 6.7 mg/L. Water which runs through canals during the non-irrigation season seeps from canals and picks up salt as it returns to the river. The plan would put winter livestock water in pipe for distribution. The Colorado River Basin Salinity Control forum has approved the plan.

PROJECT DATA SHEET - 2
COLORADO RIVER BASIN SALINITY CONTROL PROJECT - TITLE II
LOWER GUNNISON BASIN UNIT, (WINTER WATER), COLORADO

Footnotes:

1/ Winter water portion of unit with current estimated cost of $169.3 million will be completed in fiscal year 1994. The balance of the unit is indefinitely deferred until needs develop.

2/ Previous agreements with the Mexican Government concerning salinity control in the Colorado River and Public Law 93-320 authorizing Title I and Title II activities are based upon social and political justifications. The cost effectiveness of this unit is measured in terms of annual cost for each ton of salinity reduction in the Colorado River at Imperial Dam. The annual cost of the unit is $3,366,000 which includes the total investment annual equivalent cost of $2,978,000 (@ 8.875% for 50 years) plus the annual OM&R or $388,500. The Lower Gunnison Basin Unit (Winter Water) is estimated to annually remove 74,000 tons of salt from the Colorado River at an annual cost of $45 per ton of salt by providing winter livestock water through the domestic system instead of through the canal and laterals. Project not presented in FY 1990 Budget Justifications.

3/ Reimbursable interest during construction.

4/ Not presented in fiscal year 1990 Budget Justifications.

5/ Public Law 98-569 provides that 70 percent of the costs will be nonreimbursable. The other 30 percent is divided between the Lower Colorado River Basin Development Fund and the Upper Colorado River Basin Fund based on benefits to be derived by each basin from the use of water of improved quality, and availability of revenues, provided that costs allocated to the Upper Basin shall not exceed 15 percent of the costs allocated to the Upper and Lower Basin funds. Preauthorization investigation costs of $675,000 are nonreimbursable.

6/ Appropriations authorized are $287,554,000 (October 1990) for Title II of the Colorado River Basin Salinity Control Projects under Public Law 93-320. The comparable Federal obligation is $653,674,288 which exceeds the amount of contingencies included in the obligation. Appropriate congressional committees will be advised of the appropriation ceiling status for this project. Legislation to provide additional appropriation ceiling would be needed to complete the total project as authorized. Current estimated commitments will be held within the existing ceiling. The cost of the features of the McElmo Creek Unit which were made a part of the Dolores Participating Project (CRSP) in P.L 98-569 are included in the project cost ceiling.

The intent of Congress is to remove salt from the Colorado River in the most economical basis. Increments of authorized units may or may not be constructed depending upon the amount of salt needed to be removed as indicated in Joint Evaluation Report of Interior and Agriculture.

COLORADO RIVER BASIN SALINITY CONTROL PROJECT
LOWER GUNNISON BASIN UNIT, (WINTER WATER), COLORADO

PHYSICAL DATA ON STRUCTURES - 3

CONSTRUCTION PROGRAM:

Distribution System

Pumping Plant

Uprate	1,100 gpm - 2,200 gpm
New	25 gpm

Pipelines - 161.3 miles 12" - 3/4" diameter

Storage Tanks - 9 each 50,000 to 1,300,000 gallons capacity

On-Farm System

954 participating landowners

Pipelines - 212 miles 4" - 3/4" diameter

Meter Assemblies - 858 each

Stock Tanks - 2,061, each 5-15 ft. in diameter

Land and Rights:

Quantity - 20 acres
Total Estimated Cost - $57,000
Cost Per Acre - $2,850
Acquisition - 0 percent complete as of September 30, 1989

Appropriation Title: Construction Program

LOWER GUNNISON BASIN UNIT (WINTER WATER), COLORADO - 4

FISCAL YEAR 1991

Work Proposed	Program
Distribution System. - Provides for land acquisition for Menoken area. Contracts will be awarded for Menoken System Improvements and designs.	$2,078,000
On-Farm System. - Provides for land acquisition. Work will continue on improvements.	2,648,000
TOTAL	$4,726,000

RZ40 CRBSCP,LOWER GUNNSN BASN STGE1 PAGE 1

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

	PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1	* CONSTRUCTION COSTS						
2	** CRWOIP WINTER WATER SYSTEM WSI						
3	*** SERVICE FAC. DEPR. AND SALVAGE						
4					87,000		87,000-
5	** CRWOIP WINTER WATER SYSTEM WSI		169,813,000	601,889	2,613,692	4,726,000	161,871,419
6	* CONSTRUCTION COSTS		169,813,000	601,889	2,613,692	4,726,000	161,871,419
7	TOTAL PROGRAM COST		169,813,000	601,889	2,613,692	4,726,000	161,871,419
8	OTHER CONSOL. EXPEND & CREDIT		475,000-	475,000-			
9	TOTAL EXPENDITURES		169,338,000	126,889	2,613,692	4,726,000	161,871,419
10	TOTAL FEDERAL EXPENDITURES		169,338,000	126,889	2,613,692	4,726,000	161,871,419
11	TOTAL RECLAMATION EXPENDITURES		169,338,000	126,889	2,613,692	4,726,000	161,871,419
12	UNDELIVERED ORDERS			100,692	100,692-		
13	TOTAL RECLAMATION OBLIGATIONS		169,338,000	227,581	2,513,000	4,726,000	161,871,419
14	TOTAL FUNDED OBLIGATIONS		169,338,000	227,581	2,513,000	4,726,000	161,871,419
15	METHOD OF FINANCING						
16	APPLICATION OF PRIOR YEAR FUND				47,000		
17	APPROPRIATION AVAILABLE & REQD				2,466,000	4,726,000	161,871,419

REGION:
Upper Colorado

PROJECT DATA SHEET

PROJECT AND STATE: COLORADO RIVER BASIN SALINITY CONTROL PROJECT TITLE II - PARADOX VALLEY UNIT, COLORADO	Completion Date 1993 1/	% Complete 55	Date 1/31/90

AUTHORIZATION:
Public Law 93-320, June 24, 1974; Public Law 98-569, October 30, 1984

		BENEFIT COST RATIOS		
LAND CERTIFICATION: None required	DEFINITE PLAN REPORT: 2/ First Supplement to DPR Scheduled for Approval March 1991	Based on Direct Benefits 3/	Based on Total Ben. 3/	Date 10/1/90

SUMMARIZED FINANCIAL DATA

Total Federal Obligations 6/ (Reclamation)	$87,280,000	Allotments to September 30, 1989	53,373,743
Federal Obligations (WAPA)	1,090,000	Allotments for FY 1990	2,427,000
Net Property and Other Transfers:			
Federal Participation	479,000	Allotments to Date	$55,800,743
Non-Federal Participation		Allotments Required for FY 1991	3,380,000
Adjustment			
Total to be Allocated	$88,849,000	Balance to Complete after FY 1991	$28,099,257

ALLOCATIONS 4/		REPAYMENT		AMOUNTS PER ACRE	
Irrigation		Amount Repaid by:		Irrig. Invest/Acre ____	Payment Capacity per Acre ____
Power		Irrigators		Repayment of Investment per Acre:	Annual Charges:
M&I Water		Power		By Irrigators	O&M
Recreation		M&I Water		By Power Revenues	Construction
F&WL		Lower Colorado River Basin Development Fund 5/	$18,780,000	By M&I Water Users	
Flood Control		Upper Colorado River Basin Fund 5/	3,314,000		
Salinity Control	$88,849,000	Nonreimbursable 5/	66,755,000		
Other					
Total	$88,849,000	Total	$88,849,000		Total

STATUS OF REPAYMENT CONTRACT: None required.

STATUS OF NEPA COMPLIANCE: Projectwide final environmental statement was filed with Environmental Protection Agency March 20, 1979. Draft supplement to the final environmental statement is scheduled for May 1990 and the final supplement to the environmental statement is scheduled for February 1991.

DESCRIPTION: This unit is located in Montrose County in southwestern Colorado near Bedrock and is situated along the axis of a collapsed salt anticline of pure salt and salt-rich shales over 14,000 feet in depth. It is estimated that Paradox Valley contributes about 200,000 tons of salt per year to the Colorado River system via the Dolores River. By constructing and utilizing a system of wells, pumps, pipelines, and solar evaporation ponds, it is estimated that this salt loading can be reduced by 180,000 tons annually.

PROJECT DATA SHEET - 2
COLORADO RIVER BASIN SALINITY CONTROL PROJECT - TITLE II
PARADOX VALLEY UNIT, COLORADO

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1975 and for construction in FY 1977.

Deep well injection studies are underway to determine if that brine disposal method is an acceptable alternative to an evaporation pond.

Footnotes:

1/ No change as presented in fiscal year 1990 Budget Justifications.

2/ Definite Plan Report approved January 24, 1979.

3/ Previous agreements with the Mexican Government concerning salinity control in the Colorado River and Public Law 93-320 authorizing Title I and Title II activities are based upon social and political justifications. Furthermore, in 1984, the Congress passed Public Law 98-569 requiring preference for construction be given to those projects that reduce salinity at the least cost. The cost effectiveness of this unit is measured in terms of cost per ton. The annual equivalent cost of the unit is $7,096,000 at 5.625%. The annual removal of salt from the Colorado River at Paradox Valley will be 180,000 tons. The annual cost per ton of salt removed is $39.42. The cost increase is due to increase in annual equivalent costs, increase in annual estimated operation, maintenance and replacement costs, and decrease of estimated life of facilities from 100 years is 50 years. Current project costs are based on October 1990 projected price level.

4/ The methodology of cost allocation has not changed. Explanation of changes in allocations from FY 1990 Budget Justifications:

Allocation	FY 1990 Estimate	FY 1991 Estimate
Salinity Control	$84,107,000	$88,849,000

Explanation	Amount of Change
Cost Indexing (October 1989 to October 1990)	+ 61,000
New estimates on project facilities	+4,681,000
Total	$+4,742,000

PROJECT DATA SHEET - 3
COLORADO RIVER BASIN SALINITY CONTROL PROJECT - TITLE II
PARADOX VALLEY UNIT, COLORADO

Footnotes: (Continued)

5/ Public Law 93-320, section 205, states that 75 percent of the costs will be nonreimbursable. The other 25 percent is divided between the Lower Colorado River Basin Development Fund and the Upper Colorado River Basin Fund based on benefits to be derived by each basin from the use of water of improved quality, causes of salinity, and availability of revenues, provided that costs allocated to the upper basin shall not exceed 15 percent of the costs allocated to the upper and lower basin funds. The costs to which the percentage division is applied do not include $456,000 of preauthorized costs which are nonreimbursable pursuant to Public Law 92-149, nor $15,000 cultural resource costs which are nonreimbursable pursuant to Public Law 93-291.

6/ Appropriations authorized are $287,554,000 (October 1990) for Title II of the Colorado River Basin Salinity Control Project under Public Law 93-320. The comparable Federal obligation is $653,674,288 which exceeds the appropriation ceiling by more than the amount of contingencies included in the obligation. Appropriate congressional committees will be advised of the appropriation ceiling status for this project. Legislation to provide additional appropriation ceiling would be needed to complete the total project as authorized. Current estimated commitments will be held within the existing ceiling. The cost of the features of McElmo Creek Unit which were a part of The Dolores Participating Project (CRSP) in P.L. 98-569 are included in the project cost ceiling.

The intent of Congress is to remove salt from the Colorado River in the most economical basis. Increments of authorized units may or may not be constructed depending upon the amount of salt needed to be removed as indicated in the Joint Evaluation Report of Interior and Agriculture.

PHYSICAL DATA ON STRUCTURES - 4
COLORADO RIVER BASIN SALINITY CONTROL PROJECT - TITLE II
PARADOX VALLEY UNIT, COLORADO

CONSTRUCTION PROGRAM:

Radium Dam, Dike, and Evaporation Pond

Dam:
Type - Earthfill
Structural Height - 87 feet
Crest Length - 8,300 feet
Crest Width - 30 feet

Spillway:
Type - Combined with outlet works
Design Discharge - 50 cubic feet per second
Outlet Works - 810 cubic feet per second

Dike:
Type - Earthfill
Structural height - 56 feet
Crest Length - 7,500 feet
Crest Width - 30 feet

Evaporation Pond
Storage Capacity - 86,800 acre-feet

Alternate Brine Disposal Methods
Two disposal wells
Depth - 15,500 feet
Diameter - 8-3/8 inches at bottom

Brine Well Field
Twenty-four production wells with a combined pumping rate of 5 cubic feet per second

Hydrogen Sulfide Stripping Plant
Capacity - 5 cubic feet per second

Brine Pipeline
Length - 20 miles
Capacity - 5 cubic feet per second
Diameter - 15 to 18 inches

Brine Pipeline Pumping Plants
Eight plants each with total capacity of 5 cubic feet per second

PHYSICAL DATA ON STRUCTURES - 5
COLORADO RIVER BASIN SALINITY CONTROL PROJECT - TITLE II
PARADOX VALLEY UNIT, COLORADO

CONSTRUCTION PROGRAM: (continued)

Land and Rights
Quantity - 2,054 acres 1/
Total Estimated Cost - $760,456 1/
Cost Per Acre - $370
Acquisition - 37 percent as of September 30, 1989

Relocation
Total Estimated Cost - $362,000
Percent Complete - 0 percent as of September 30, 1989

Item:	Length (miles)	Total Cost	Cost to September 30, 1989
San Miguel County Road	4.2	$362,000	---

1/ Decreased from fiscal year 1990 Budget Justifications due to deletion of land costs from Radium Dam due to current plan of using deep well injection in disposal of brine.

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Appropriation Title: Construction Program

PARADOX VALLEY UNIT, COLORADO - 6

FISCAL YEAR 1991

Work Proposed	Program
Brine Well Field. Monitoring activities will complete.	$ 100,000
Radium Dam, Dike, and Evaporation Pond (Deep Injection Wells). - Geophysical logging activities will be completed. Contracts will be awarded for centrifugal pumps and supervisory controls.	2,791,000
Service Facilities, Depreciation, and Salvage. - Purchase of office and field equipment will continue.	89,000
Other Project Costs. - Maintenance of constructed facilities will continue during testing.	400,000
TOTAL	$3,380,000

CRBSCP, PARADOX VALLEY UNIT
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1 * CONSTRUCTION PROGRAM						
2 ** BRINE WELL FIELD						
3		3,738,354	3,492,354	146,000	100,000	
4 ** RAD DAM, DIKE, EP, DEEP WELL						
5		79,146,646	48,581,778	2,881,000	2,791,000	24,892,868
6 ** PERMANENT OP FACIL						
7		1,154,000	40,067			1,113,933
8 ** O M HOUSING						
9		734,000	36,141			697,859
10 ** WILDLIFE MITIGATION						
11		942,000	60,136			881,864
12 ** SERV FACIL,DEPREC,SALVAGE						
13		346,394	246,434	65,000	89,000	54,040-
14 * CONSTRUCTION PROGRAM		86,061,394	52,456,910	3,092,000	2,980,000	27,532,484
15 * OTHER PROJECT COSTS						
16		2,044,000	465,450	400,000	400,000	778,550
17 TOTAL PROGRAM COST		88,105,394	52,922,360	3,492,000	3,380,000	28,311,034
18 OTHER CONSOL. EXPEND & CREDIT		479,000-	613,884-	267		134,617
19 TOTAL EXPENDITURES		87,626,394	52,308,476	3,492,267	3,380,000	28,445,651
20 TOTAL FEDERAL EXPENDITURES		87,626,394	52,308,476	3,492,267	3,380,000	28,445,651
21 TOTAL RECLAMATION EXPENDITURES		87,626,394	52,308,476	3,492,267	3,380,000	28,445,651
22 UNDELIVERED ORDERS			869,267	869,267-		
23 TOTAL RECLAMATION OBLIGATIONS		87,626,394	53,177,743	2,623,000	3,380,000	28,445,651
24 TOTAL FUNDED OBLIGATIONS		87,626,394	53,177,743	2,623,000	3,380,000	28,445,651
1 METHOD OF FINANCING						
2 APPLICATION OF PRIOR YEAR FUND				196,000		
3 APPROPRIATION AVAILABLE & REQD				2,427,000	3,380,000	28,445,651

REGION:
Upper Colorado

PROJECT DATA SHEET

PROJECT AND STATE:	Completion Date	% Complete	Date
SAN LUIS VALLEY PROJECT, CLOSED BASIN DIVISION, COLORADO	1993 1/	75	1/31/90

AUTHORIZATION:
Public Law 92-514, October 20, 1972; Public Law 98-570, October 30, 1984;
Public Law 96-375, October 3, 1980; Public Law 100-516, October 24, 1988.

BENEFIT COST RATIOS		
Based on Direct Benefits	Based on Total Benefits	Date
2/ 0.5	2/ 0.5	10/1/90

LAND CERTIFICATION:	DEFINITE PLAN REPORT:
None required	Approved November 16, 1979

SUMMARIZED FINANCIAL DATA

Total Federal Obligations(Reclamation) 4/	$ 94,000,000	Allotments to September 30, 1989	$ 73,925,342
Total Federal Obligations(Other)		Allotments for FY 1990	7,426,000
Net Property and Other Transfers:			
Federal Participation	216,401		
Non-Federal Participation 3/	6,000,000	Allotments to Date	$ 81,351,342
Adjustments 6/	64,145	Allotments Required for FY 1991	6,810,000
Total to be Allocated	$100,280,546	Balance to Complete after FY 1991	$ 5,838,658

ALLOCATIONS 5/		REPAYMENT		AMOUNTS PER ACRE	
Irrigation	$	Amount Repaid by:		Irrig. Invest/Acre $	Payment Capacity per Acre
Power		Irrigators	$	Repayment of Investment per Acre:	Annual Charges:
M&I Water		Power		By Irrigators	O&M
Recreation	3,850,199	M&I Water		By Power Revenues	Construction
F&WL	4,209,025	Reimbursable Rec. 7/	638,398		
Flood Control		Reimbursable Fish and Wildlife 7/	100,747		
Water Salvage	91,725,937	State of Colorado 3/	6,000,000		
State-County		Nonreimbursable 8/	93,541,401		
Other 6/	495,385	Total	$100,280,546		
Total	$100,280,546				

STATUS OF REPAYMENT CONTRACT: Repayment contract for reimbursable cost of recreation and fish and wildlife was executed on February 21, 1985. Validation is not required. A cost sharing agreement with the State of Colorado, as required by Public Law 100-516, was executed on June 16, 1989.

STATUS OF NEPA COMPLIANCE: Projectwide final environmental statement was filed with Council on Environmental Quality on September 21, 1971. A revised draft statement was filed with the Environmental Protection Agency April 19, 1979, and the final statement was filed August 27, 1979. A draft supplement was filed with the Environmental Protection Agency February 11, 1982, and the final supplement was filed September 30, 1982.

DESCRIPTION: The project is located in south-central Colorado in Saguache and Alamosa Counties. The project is designed to facilitate the salvage and regulation of water now being nonbeneficially consumed within the closed basin and deliver this water to the Rio Grande. This will help the United States meet its obligation to Mexico under the May 21, 1906 treaty, and provide additional water for use in Colorado, New Mexico, and Texas. The Project will also provide a water supply to the

PROJECT DATA SHEET - 2
SAN LUIS VALLEY PROJECT
CLOSED BASIN DIVISION, COLORADO

DESCRIPTION: (Continued)

Alamosa National Wildlife Refuge and establish the Russell Lakes Wildlife management Area. The plan provides for installation of a system of wells, laterals, and main canals to salvage ground waters within the adopted salvage areas. This development will salvage an average of 100,800 acre-feet annually.

OTHER INFORMATION: Funds to initiate advance planning were appropriated in FY 1976 and for construction in FY 1979. Public Law 100-516 dated October 24, 1988, increased the authorized appropriation ceiling from $75 million to $94 million and provided that funds in excess of $75 million could be expended only after a binding agreement was signed with the State of Colorado requiring a contribution of one-third of the construction cost in excess of $75 million or $6 million whichever is less. That agreement was signed on June 16, 1989.

Footnotes:

1/ In accordance with the authorizing legislation, Public Law 92-514, Section 101(b), the project is being constructed in stages. Stage 1-2 was completed in 1985 and Stage 3 was essentially completed in 1987. Stage 4 is scheduled for completion in 1991 and Stage 5 in 1993.

2/ No change from 1990 Budget Justifications.

3/ Amount to be contributed by the State of Colorado as required by Public Law 100-516 and cost sharing Agreement No. 9-07-40-R0850, dated June 16, 1989.

4/ Reimbursable interest during construction of $55,398 for recreation and $8,747 for fish and wildlife.

5/ The methodology of cost allocation has not been modified. There was no net change from the 1990 Budget Justification.

Allocation	FY 1990 estimate	FY 1991 estimate
Recreation	$ 3,850,199	$ 3,850,199
Fish and Wildlife	4,209,025	4,209,025
Water Salvage	91,731,246	91,725,937
Other	490,076	495,385
Total	$100,280,546	$100,280,546

PROJECT DATA SHEET - 3
SAN LUIS VALLEY PROJECT
CLOSED BASIN DIVISION, COLORADO

Footnotes: (Continued)

The increase in the allocation to "other" due to an increase in the estimate for cultural resources was offset by a decrease to water salvage.

6/ Consists of nonreimbursable preauthorization investigation costs of $173,701 (Public Law 92-149) and $321,684 for nonreimbursable cultural resources activities (Public Law 93-291).

7/ The scheduled amount to be repaid is covered by existing contracts with the project beneficiaries.

8/ Includes $85,725,937 for water salvage; $3,211,801 for recreation; $4,108,278 for fish and wildlife; $173,701 for preauthorization investigation costs (Public Law 92-149); and $321,684 for cultural resources activities (Public Law 93-291).

9/ Appropriations authorized are $94,000,000 (October 1990). This authorization is adequate to cover this project as currently proposed.

PHYSICAL DATA ON STRUCTURES - 4
SAN LUIS VALLEY PROJECT
CLOSED BASIN DIVISION, COLORADO

CONSTRUCTION PROGRAM:

Deep Wells

Number of Wells - 183   Well Sizes - 10 to 14 inches   Well Depth - 50 to 125 feet

Canals

Length - 41.6 miles   Capacity - 15 to 160 cubic feet per second   Bottom Width - 4 to 22 feet

Laterals

Pipe System -
Length - 105.6 miles   Capacity - 10 to 0.6 cubic feet per second

Transmission Lines
Total length - 139.9 miles   Capacity - 13.8 to 69 kilovolt
Underground - 96.3 miles
Overhead - 43.6 miles

Substations

Units - 2   Capacity - 1,000 kilovolt-amperes

Land and Rights 1/

Quantity - 6,744 acres
Total Estimated Cost - $5,311,224

Cost per Acre - $788
Acquisition - 62 percent as of September 30, 1989

1/ Cost of land decreased due to new estimate.

SAN LUIS VALLEY PROJECT
CLOSED BASIN DIVISION, COLORADO - 5

FISCAL YEAR 1991

Work Proposed	Program
Deep Wells. - Contracts for Stage 5 pumps and prime movers, and for the installation of the Stage 4 supervisory control system will be awarded.	$ 603,000
Laterals. - The contract for construction of Stage 5 laterals and other minor contracts will be awarded. The contract for construction of Stage 4 laterals will be completed.	8,246,000
Transmission System. - The contract for Phase V and Phase VI of the electrical transmission system will be awarded.	1,681,000
Permanent Operating Facilities. - Minor facility modification work will be completed.	10,000
Wildlife Facilities - Mitigation. - Land acquisition activities will be continued. A contract for the Russell Lakes Wildlife Management Area will be completed.	1,061,000
Recreation Facilities. - A contract to construct the Head Lake measuring station will be completed.	63,000
Service Facilities. - Acquisition of equipment will continue.	41,000
Non-Federal Participation. - State of Colorado will furnish funds under terms of Public Law 100-516 and Cost Sharing Agreement dated June 16, 1989.	-4,895,000
TOTAL	$6,810,000

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SAN LUIS VALLEY, CLOSED BASIN
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

	PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1	* CONSTRUCTION COSTS						
2	** DEEP WELLS						
3			15,994,000	14,803,490	120,000	603,000	467,510
4	** CANALS						
5			29,168,129	29,168,129			
6	** LATERALS						
7			31,883,741	14,579,872	5,216,000	8,246,000	3,841,869
8	** TRANSMISSION SYSTEM						
9			13,670,000	6,938,342	1,768,000	1,681,000	3,282,658
10	** PERMANENT OPERATING FACILITIES						
11			920,000	850,698	38,000	10,000	21,302
12	** WILDLIFE FACILITIES-MITIGATION						
13			6,947,000	4,264,946	1,384,000	1,061,000	237,054
14	** RECREATION FACILITIES						
15			1,147,000	388,336	695,000	63,000	664
16	** SERVICE FACILITIES DEPR/SALV						
17				675,480		41,000	716,480-
18	* CONSTRUCTION COSTS		99,729,870	71,669,293	9,221,000	11,705,000	7,134,577
19	* OTHER PROJECT COSTS						
20			495,385	495,385			
21	TOTAL PROGRAM COST		100,225,255	72,164,678	9,221,000	11,705,000	7,134,577
22	OTHER CONSOL. EXPEND & CREDIT		225,255-	34,470-	134		190,919-
23	TOTAL EXPENDITURES		100,000,000	72,130,208	9,221,134	11,705,000	6,943,658
24	NONFEDERAL CASH CONTRIBUTIONS		6,000,000-			4,895,000-	1,105,000-
25	TOTAL FEDERAL EXPENDITURES		94,000,000	72,130,208	9,221,134	6,810,000	5,838,658
26	TOTAL RECLAMATION EXPENDITURES		94,000,000	72,130,208	9,221,134	6,810,000	5,838,658

SAN LUIS VALLEY, CLOSED BASIN
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1 UNDELIVERED ORDERS			1,782,134	1,782,134-		
2 TOTAL RECLAMATION OBLIGATIONS		94,000,000	73,912,342	7,439,000	6,810,000	5,838,658
3 TOTAL FUNDED OBLIGATIONS		94,000,000	73,912,342	7,439,000	6,810,000	5,838,658
4 METHOD OF FINANCING						
5 APPLICATION OF PRIOR YEAR FUND				13,000		
6 APPROPRIATION AVAILABLE & REQD				7,426,000	6,810,000	5,838,658
7 NONFEDERAL PARTICIPATION					4,895,000	1,105,000

PROJECT DATA SHEET

REGION: Great Plains				
PROJECT AND STATE: PICK-SLOAN MISSOURI BASIN PROGRAM NORTH LOUP DIVISION, NEBRASKA		Completion Date 1994 1/	% Complete 71	Date 1/31/90
AUTHORIZATION: P. L. 92-514, October 20, 1972, P.L. 99-500, October 18, 1986, and P. L. 99-591, October 30, 1986.		**BENEFITS COST RATIO** Based on Direct Benefits	Based on Total Benefits	Date
LAND CERTIFICATION: April 20, 1976	DEFINITE PLAN REPORT: Approved May 24, 1978	1.5 2/	1.7 2/	10/01/90

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 13/	$348,610,000	Allotments to September 30, 1989	$246,502,507
		Allotments for FY 1990	21,028,000
Net Property and Other Transfers:			
Federal Participation	1,910,000	Allotments to Date	266,830,507
Non-Federal Participation 3/	2,220,000	Allotments Required for FY 1991	21,646,000
Adjustments 4/	2,062,000	Balance to Complete after FY 1991	$ 59,433,493
Total to be Allocated	$354,802,000		

ALLOCATIONS 5/		REPAYMENTS		AMOUNTS PER ACRE			
Irrigation	$322,362,000	Amount Repaid of Irrigators 7/	$ 37,097,000	Irrig. Invest. per acre	6,082	Payment Capacity per acre 11/	$27.90
Power		Amount Repaid by Power 8/	285,265,000	Repayment of Investment per Acre:		Annual Charges:	
M&I Water		Amount Repaid by M&I Water		By Irrigators	700	O&M 11/	14.00
Recreation	12,463,000	Reimbursable Recreation 9/	570,000	By Power Revenues	5,382	Construction	13.90
F&WL	17,529,000	Reimbursable F&WL 9/	1,650,000	By M&I Water Users			
Other 6/	2,448,000	Nonreimbursable 10/	30,220,000				
Total	$354,802,000	Total	$354,802,000			Total	$27.90

STATUS OF REPAYMENT CONTRACT: Repayment contract with the Twin Loups Irrigation District executed June 4, 1976, validated August 2, 1977. Water service contract with the Twin Loups Reclamation District executed June 4, 1976, validated August 17, 1979.12/ Cost-sharing agreement covering the reimbursable recreation costs executed June 17, 1983, and the reimbursable fish and wildlife cost executed May 31, 1985, with Nebraska Game and Parks Commission. The repayment contract with the Twin Loups Irrigation District was amended April 10, 1987. The repayment contract was amended to increase the current estimated cost of the distribution and drainage system and to increase the repayment from the Irrigation District recognizing the increase in the recomputed payment capacity.

STATUS OF NEPA COMPLIANCE: Projectwide final environmental statement was filed with Council on Environmental Quality on September 18, 1972. Supplement to the final filed with the Environmental Protection Agency, April 12, 1979.

PROJECT DATA SHEET - 2
PICK-SLOAN MISSOURI BASIN PROGRAM
NORTH LOUP DIVISION, NEBRASKA

DESCRIPTION: The project is located in central Nebraska along the North Loup and Loup Rivers and will serve the function of irrigation, recreation, and fish and wildlife. Diversion facilities are located in Loup and Garfield Counties and the irrigable lands are located in Valley, Greeley, Howard, Merrick, and Nance Counties. The major authorized features are Calamus Dam and Reservoir, Kent Diversion Works, and Davis Creek Dam and Reservoir. Distribution facilities to provide water to 53,000 acres of irrigable land are authorized. Corn, alfalfa, hay, and wheat are the principal crops that are presently grown. A higher proportion of corn is expected with application of project water.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1974 and for construction in FY 1976. Construction began in June 1976. P.L. 99-500 and P. L. 99-591 Sec. 101(e) increased the authorized appropriation for construction of the North Loup Division (both Public Laws have identical language and Sections).

Footnotes:

1/ Initial water for irrigation service occurred in June 1987 (22,670 acres). An additional 10,240 acres received irrigation water in 1989. Construction of the entire project as authorized, is projected for completion in 1994, including Davis Creek Dam and related facilities.

2/ Unchanged from 1.5 direct benefits and 1.7 total benefits as presented in the FY 1990 Budget Justifications. Both benefits and costs have been updated and projected to October 1990 levels. The irrigation benefits were reevaluated and decreased due to current agricultural prices. The project cost remains the same; the benefit cost ratios did not change. The authorized interest rate of 3-1/4 percent was used to compute the benefit-cost ratio.

3/ The State of Nebraska provides funds for fish and wildlife and recreation.

4/ Interest-free power investment of $2,062,000 for pumping power.

5/ The methodology of cost allocation has not been modified. An explanation of the changes in allocations between FY 1990 and FY 1991 is as follows:

Allocation	FY 1990 Estimate	FY 1991 Estimate
Irrigation	$322,954,000	$322,362,000
Recreation	11,970,000	12,463,000
Fish and Wildlife	17,430,000	17,5[illegible]00
Other	2,448,000	2,44[illegible]00
Total.	$354,802,000	$354,802,000

Footnotes (continued)

Explanation	Amount of Change
Others:	
Decrease in allocated joint costs for irrigation	$-592,000
Increase in allocated joint costs for recreation	+493,000
Increase in allocated joint costs for fish and wildlife	+99,000
Total	-0-

The small changes in allocation to project functions are due to a change in the relationships of benefits between the project functions as well as minor changes in interest during construction, and estimated operation and maintenance costs.

6/ Represents nonreimbursable preauthorization investigation costs of $1,668,000 (Public Law 92-149) and $780,000 for cultural resources activities (Public Law 93-291).

7/ The scheduled amount to be repaid is covered by existing contracts with the project beneficiaries.

8/ The cost allocated to irrigation decreased by $592,000, while the amount repaid by irrigators remained unchanged, therefore, the amount repaid by power decreased by $592,000 from that shown in the FY 1990 Budget Justifications.

9/ The scheduled amount to be repaid is covered by cost sharing agreements with the Nebraska Game and Parks Commission in accordance with Public Law 89-72.

10/ Includes nonreimbursable fish and wildlife $15,879,000; recreation $11,893,000; $1,668,000 preauthorization investigation costs; and $780,000 for cultural resources activities.

11/ Determined in February 1986 and used as the basis for negotiation of the amended repayment contract with the Twin Loups Irrigation District which was executed April 10, 1987.

12/ Water service contract is renewable and covers a period greater than 40 years.

13/ Appropriations authorized are $354,401,000 (October 1990). This authorization is adequate to cover this project as currently proposed.

PHYSICAL DATA ON STRUCTURES - 4
PICK-SLOAN MISSOURI BASIN PROGRAM
NORTH LOUP DIVISION, NEBRASKA

COMPLETED WORK:

Access Road to Calamus Damsite

Type - Asphalt concrete

Length - 6.5 miles

CONSTRUCTION PROGRAM:

Calamus Dam and Reservoir

Dam:
Type - Zoned earthfill
Structural Height - 96 feet
Crest Length - 7,250 feet
Base Width - 1,255 feet, maximum

Spillway:
Type - Morning glory
Design Discharge - 3,080 cubic feet per second

Reservoir Capacity:
Total Storage - 127,300 acre-feet

Davis Creek Dam and Reservoir

Dam:
Type - Zoned earthfill
Structural Height - 157 feet
Crest Length - 3,000 feet
Base Width - 690 feet, maximum

Spillway:
Increase in canal outlet capacity of 240 cubic feet per second in conjunction with an emergency overbank spillway

Reservoir Capacity:
Total Storage - 32,760 acre-feet

Kent Diversion Works

Dam:
Type - Concrete and rolled earth
Structural Height - 9 feet
Crest Length - 1,000 feet
Diversion Capacity - 350 cubic feet per second

Spillway:
Type - Concrete ogee
Design Discharge - 3,610 cubic feet per second

Reservoir Capacity:
Total Storage - None

PHYSICAL DATA ON STRUCTURES - 5
PICK-SLOAN MISSOURI BASIN PROGRAM
NORTH LOUP DIVISION, NEBRASKA

Geranium Pumping Plant

Nine units - Total capacity 210 cubic feet per second at 122 feet head

Canals	Length Open Canal	(miles) Buried Pipe	Capacity (cubic feet per second)	Service area (acres
Kent Canal	4	--	350	Feeder canal
Mirdan Canal	46	--	870 to 250	11,730
Geranium Canal	15	2	200 to 12	10,940
Scotia Canal	31	4	190 to 2	10,240
Fullerton Canal	46	5	400 to 2	16,210
Elba Canal	4	5	80 to 2	3,880

Lateral Distribution System

Length - 140 miles (12 miles of open laterals and 128 miles of buried pipe)
Capacity - 70 to 15 cubic feet per second (Open Laterals) and 37 to 1 cubic foot per second (Buried Pipe)

Land and Rights

Quantity - 20,448 acres
Total Estimated Cost - $13,835,984 1/
Cost Per Acre - $676
Acquisition - 81 percent of the land and rights have been acquired as of September 30, 1989.

Relocations

Total Estimated Cost - $7,600,000
Percent Complete - 78 percent as of September 30, 1989.

Items	Length	Total Cost	Cost to September 30, 1989
County Roads	27 miles	$7,270,000	$5,640,000
Utility Lines	32 miles	330,000	280,000
Total		$7,600,000	$5,920,000

1/ Changed from $13,840,096 in the FY 1990 Budget Justifications due to actual land costs of Mirdan Canal Sections 2-3 being less than the estimate.

Appropriation Title: Construction Program

PICK-SLOAN MISSOURI BASIN PROGRAM
NORTH LOUP DIVISION, NEBRASKA - 6

FISCAL YEAR 1991

Work Proposed	Program
Calamus Dam and Reservoir. - Fish and wildlife mitigation measures will complete.	$ 400,000
Davis Creek Dam. - Major construction on Davis Creek Dam will be completed. Minor work and filling of the Reservoir will continue. Contracts will be awarded for access road and telephone relocations and reservoir fencing and cleaning.	5,309,000
Diversion Works, Pumping Plant, Canals, Laterals, and Surface Drains. - Construction will continue on the Fullerton 1-Elba System. Land and rights acquisition will continue. Construction on the Fullerton 2/3 System will begin. Land and rights acquisition for Kent Diversion Dam and Canal will be accomplished. Preconstruction activities on the remaining facilities will continue.	14,837,000
Subsurface Drains. - Monitoring of groundwater levels will continue.	400,000
Permanent Operating Facilities. - The purchase of operating equipment will continue.	260,000
Other Project Costs. - Maintenance of completed facilities and work on cultural resource activities will continue.	440,000
TOTAL	$21,646,000

NORTH LOUP DIVISION, P-SMBP
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1 • CONSTRUCTION PROGRAM						
2 •• CALAMUS DAM/RESERVOIR						
3		85,500,000	84,473,788	120,000	400,000	506,212
4 •• RECREATION DEVELOPMENT						
5 ••• COST SHARE BY NEBRASKA						
6		570,000	570,000			
7		1,140,000	1,136,050			3,950
8 •• FISH AND WILDLIFE ENHANCEMENT						
9 ••• COST SHARE BY NEBRASKA						
10		1,650,000	730,000	920,000		
11		6,600,000	2,915,628	3,680,000		4,372
12 •• DAVIS CREEK DAM AND RESERVOIR						
13		35,100,000	16,485,579	11,543,000	5,309,000	1,762,421
14 •• DIV WK.CAN.LATS.DRAINS/PUMP P.						
15		197,330,000	135,820,432	7,496,000	14,837,000	39,176,568
16 •• SUBSURFACE DRAINS						
17		16,440,000	91,426	400,000	400,000	15,548,574
18 •• PERMANENT OPERATING FACILITIES						
19		2,680,000	2,032,971	51,000	260,000	336,029
20 •• SERVICE FAC DEPR AND SALVAGE						
21			577,098			577,098-
22 • CONSTRUCTION PROGRAM		344,790,000	243,532,972	23,290,000	21,206,000	56,761,028
23 • OTHER PROJECT COSTS						
24		7,950,000	3,913,054	580,000	440,000	3,016,946
25 TOTAL PROGRAM COST		352,740,000	247,446,026	23,870,000	21,646,000	59,777,974
26 OTHER CONSOL. EXPEND & CREDIT		1,910,000-	1,573,351-	7,832		344,481-
27 TOTAL EXPENDITURES		350,830,000	245,872,675	23,877,832	21,646,000	59,433,493
28 NONFEDERAL NONCASH CONTRIBUTION		2,220,000-	1,300,000-	920,000-		
29 TOTAL FEDERAL EXPENDITURES		348,610,000	244,572,675	22,957,832	21,646,000	59,433,493

NORTH LOUP DIVISION, P-SMBP
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1 TOTAL RECLAMATION EXPENDITURES		348,610,000	244,572,675	22,957,832	21,646,000	59,433,493
2 UNDELIVERED ORDERS			1,759,832	1,759,832-		
3 TOTAL RECLAMATION OBLIGATIONS		348,610,000	246,332,507	21,198,000	21,646,000	59,433,493
4 TOTAL FUNDED OBLIGATIONS		348,610,000	246,332,507	21,198,000	21,646,000	59,433,493
5 METHOD OF FINANCING						
6 APPLICATION OF PRIOR YEAR FUND				170,000		
7 APPROPRIATION AVAILABLE & REQD				21,028,000	21,646,000	59,433,493

REGION: Great Plains	PROJECT DATA SHEET			
PROJECT AND STATE: PICK-SLOAN, MISSOURI BASIN PROGRAM O'NEILL UNIT, NEBRASKA		Completion Date 1/	% Complete 1/	Date 1/31/90
AUTHORIZATION: Public Law 92-514, October 20, 1972 1/		BENEFIT COST RATIOS		
		Based on Direct Benefits	Based on Total Benefits	Date
LAND CERTIFICATION: March 29, 1976	DEFINITE PLAN REPORT: Approved March 24, 1977 New plan scheduled for approval 10/92 2/	1/ 1/	1/	10/01/90

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 1/	$173,200,000	Allotments to September 30, 1989	$ 8,667,115
		Allotments for FY 1990	190,000
Net Property and Other Transfers:			
Federal Participation	1,300,000	Allotments to Date	$ 8,857,115
Non-Federal Participation		Allotments Required for FY 1991	600,000
Adjustment		Balance to Complete after FY 1991	$ 163,742,885
Total to be Allocated	$174,500,000		

ALLOCATIONS	REPAYMENT	AMOUNTS PER ACRE	
Irrigation	Amount Repaid of Irrigators	Irrig. Invest. per Acre $	Payment Capacity per acre
Power	Amount Repaid by Power	Repayment of Investment per Acre:	Annual Charges:
M&I Water	Amount Repaid by M&I Water	By Irrigators	O&M
Recreation		By Power Revenues	Construction
F&WL		By M&I Water Users	
Flood Control			
Other	Nonreimbursable		
Total 1/	Total 1/		Total 1/

STATUS OF REPAYMENT CONTRACT: Repayment contract with the Niobrara Basin Irrigation District and water service contract with North Central Nebraska Reclamation District executed May 18, 1976, and validated April 9, 1980. 1/

STATUS OF NEPA COMPLIANCE: Projectwide environmental statement was filed with Council on Environmental Quality September 22, 1972. First supplement filed with Environmental Protection Agency on June 16, 1978. Second supplement filed with the Environmental Protection Agency July 24, 1981. EIS on New Project Plan is scheduled to be filed with the Environmental Protection Agency in September 1992. 1/ 2/

DESCRIPTION: The project is located in north central Nebraska within the Niobrara River Basin and would serve the function of irrigation. The groundwater recharge/recovery concept proposed in the Nebraska State-led O'Neill Unit Alternative Study has diversion facilities located in Keya Paha and Rock Counties with irrigable lands in Holt and Keya Paha Counties. A diversion dam, pumping plant, and conventional distribution system would serve 8,000 acres of irrigable land in Keya Paha County, whereas an infiltration gallery, pumping plant, supply pipeline, distribution system pipelines, injection wells, and recharge wells would serve 84,680 acres of irrigable land in Holt County. Recovery of water injected into the aquifer would supply 62,000 acres, while 22,680 acres would be supplied by direct-service pipelines. Corn, alfalfa, hay, and wheat are the principal crops that are presently grown. A higher proportion of corn is expected with application of project water.

PROJECT DATA SHEET - 2
Pick-Sloan Missouri Basin Program
O'Neill Unit, Nebraska

OTHER INFORMATION: Funds to initiate construction planning were appropriated in FY 1974. Construction of the plan authorized by P.L. 92-514 began in FY 1976 and construction activities were stopped by an injunction issued by the U. S. District Court on March 4, 1977. Litigation continued until May 9, 1985, when the court dismissed without prejudice all motions concerning the O'Neill Unit. All work on the authorized plan has been terminated.

The FY 1983 Supplemental Appropriations Bill directed the Bureau to contract with the State of Nebraska to conduct the State-led study of a well field/groundwater recharge proposal or alternative to the Norden Dam and further directed a use of available funds not to exceed $100,000 and 18 month's duration. The report, Nebraska State-led O'Neill Unit Alternative Study, was completed January 31, 1985. The report proposed a groundwater recharge/recovery concept to serve the majority of the area plus direct service to serve those areas not susceptible to groundwater recharge. The Nebraska congressional delegation plus the Governor of the State of Nebraska expressed unified support for this groundwater recharge/recovery concept. Legislation was introduced into the Senate of the 101st Congress (S.281, January 31, 1989) to modify the existing O'Neill Unit authorization to provide for the proposals presented in the Nebraska State-led study. All work on the "authorized" project has been stopped. Work was completed on a Plan of Study (November 1985) to verify the groundwater recharge/recovery concept proposed by the State of Nebraska.

In recognition of the very complex study and the State of Nebraska's interest in participating fully in this effort, a Memorandum of Understanding (MOU) was executed on April 3, 1987, with the Bureau of Reclamation and the Nebraska Natural Resources Commission. The MOU stipulates how unresolved issues will be addressed and assigns leadership for specific activities. The Bureau of Reclamation has conducted gallery line performance and aquifer performance tests at the Mariaville Pumping Plant site. Currently, the Bureau is conducting tests on three methods of groundwater recharge in the project lands area: (1) recharge pits, (2) buried drainage pipelines, and (3) injection wells--injecting into both saturated and unsaturated aquifers. The U. S. Geological Service is collecting basic surface water, groundwater, and aquifer performance data through an interagency agreement with the Bureau of Reclamation.

Footnotes:

1/ Revision or adjustments to Public Law 92-514 would be necessary for the groundwater recharge/recovery concept proposed in the Nebraska State-led O'Neill Unit Alternative Study dated January 31, 1985. The groundwater recharge preconstruction study would verify the groundwater recharge/recovery concept proposed by the State of Nebraska. An economic analysis of the groundwater recharge/recovery proposal has not been conducted. A new authorized appropriation ceiling would be required for project construction.

2/ The completion of the study has been delayed 1 year until September 1992.

PICK-SLOAN MISSOURI BASIN PROGRAM
O'NEILL UNIT, NEBRASKA -3

FISCAL YEAR 1991

Work Proposed	Program
The groundwater recharge verification study will continue.	$600,000
TOTAL	$600,000

578

O'NEILL UNIT, P-SMBP
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

	PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1	* CONSTRUCTION PROGRAM						
2	** GROUND WATER RECHARGE PROJECT						
3	*** NON CONTRACT COSTS						
4			15,600,000	1,657,306	279,000	600,000	13,063,694
5	** GROUND WATER RECHARGE PROJECT		166,500,000	1,657,306	279,000	600,000	163,963,694
6	** SERVICE FAC DEPR AND SALVAGE						
7				142,419			142,419-
8	* CONSTRUCTION PROGRAM		166,500,000	1,799,725	279,000	600,000	163,821,275-
9	* OTHER PROJECT COSTS						
10			8,000,000	7,914,746			85,254
11	TOTAL PROGRAM COST		174,500,000	9,714,471	279,000	600,000	163,906,529
12	OTHER CONSOL. EXPEND & CREDIT		1,300,000-	1,136,393-	37		163,644-
13	TOTAL EXPENDITURES		173,200,000	8,578,078	279,037	600,000	163,742,885
14	TOTAL FEDERAL EXPENDITURES		173,200,000	8,578,078	279,037	600,000	163,742,885
15	TOTAL RECLAMATION EXPENDITURES		173,200,000	8,578,078	279,037	600,000	163,742,885
16	UNDELIVERED ORDERS			89,037	89,037-		
17	TOTAL RECLAMATION OBLIGATIONS		173,200,000	8,667,115	190,000	600,000	163,742,885
18	TOTAL FUNDED OBLIGATIONS		173,200,000	8,667,115	190,000	600,000	163,742,885
1	METHOD OF FINANCING						
2	APPROPRIATION AVAILABLE & REQD				190,000	600,000	163,742,885

REGION:
Great Plains

PROJECT DATA SHEET

PROJECT AND STATE: PICK-SLOAN MISSOURI BASIN PROGRAM GARRISON DIVERSION UNIT, NORTH DAKOTA	Completion Date 1/	% Complete 31	Date 1/31/90
AUTHORIZATION: Public Law 89-108, August 5, 1965, Public Law 98-360, July 16, 1984, and Public Law 99-294, May 12, 1986	BENEFIT COST RATIO		
	Based on Direct Benefits	Based on Total Benefits	Date
LAND CERTIFICATION: 2/ — DEFINITE PLAN REPORT: 3/	1.1 4/	1.6 4/	10/01/90

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 19/	$1,428,480,000	Allotments to September 30, 1989	$ 360,218,600
		Allotments for FY 1990	26,580,000
Net Property and Other Transfers:			
Federal Participation	7,491,952	Allotments to Date	386,798,600
Non-Federal Participation 5/	74,928,000	Allotments Required for FY 1991	
Adjustments 6/	71,166,048		
Total to be Allocated	$1,582,066,000	Balance to Complete after FY 1991	$1,041,681,400

ALLOCATIONS 7/		REPAYMENT		AMOUNTS PER ACRE 17/			
Irrigation 8/	$831,831,000	Amount Repaid by:		Irrigation Invest/Acre	$6,352	Payment Capacity per acre	$36.68
Power	38,000	Irrigators 11/	$10,036,000	Repayment of Investment per Acre:		Annual Charges:	
M&I Water 9/	373,292,000	Power 12/	740,956,000	By Irrigators	76	O&M	34.89
Recreation	20,326,000	M&I Water 11/	43,519,000	By Power Revenues	5,658	Construction	1.79
F&WL	73,600,000	Unused Facilities 13/	53,153,000	By M&I Water Users			
Flood Control	3,499,000	Non-Federal Contribution 14/	74,928,000	By Contributions	2		
Hwy Improvement	4,650,000	Indian-Deferred 15/	80,669,000	Indian Irrigation Deferred	616		
Other 10/	274,830,000	Nonreimbursable 16/	578,805,000				
Total	$1,582,066,000	Total	$1,582,066,000			Total	$36.68

STATUS OF REPAYMENT CONTRACT: Execution of the master contract with Garrison Diversion Conservancy District and three-way contracts between Bureau of Reclamation, Conservancy District, and Irrigation Districts, containing approximately 113,000 acres of irrigable land, was completed March 16, 1966. Court validation was completed July 26, 1966, and confirmed August 10, 1966. Renegotiation to conform to the reformulation legislation must occur prior to construction activity in irrigation areas. Cooperative Agreement for MR&I water was executed November 19, 1986. Grant Agreement for North Dakota Wetlands Trust was executed on December 18, 1986. A renegotiated repayment contract with Garrison Diversion Conservancy District has not been completed.

STATUS OF NEPA COMPLIANCE: 18/ A draft environmental statement (DES-86-9) addressing the Garrison Commission recommendations was filed with the Environmental Protection Agency on March 6, 1986. A draft supplement to the Draft Environmental Statement (DES-86-51) was filed with EPA on December 30, 1986. The reformulated project FES, including DES-86-9 and DES-86-51, will not be pursued further unless project work is resumed in the future.

PROJECT DATA SHEET - 2
Pick-Sloan Missouri Basin Program
Garrison Diversion Unit, North Dakota

DESCRIPTION: The project, as reformulated by Public Law 99-294, is substantially in accordance with the recommendations of the Garrison Diversion Unit Commission Final Report of December 20, 1984. The plan authorized by Public Law 99-294 consists of 130,940 acres of irrigated lands. This includes 85,360 acres of lands in the following irrigation areas: McClusky Canalside Irrigation (4,000), Oakes Test Area (5,000), West Side Irrigation Area (14,660), West Oakes Extension Area (4,000), LaMoure Irrigation Area (13,350), New Rockford Canal Area (1,200), New Rockford Irrigation Area (20,935), Lincoln Valley Irrigation Area (6,515), Turtle Lake Irrigation Area (13,700), and Harvey Irrigation Area (2,000). Irrigation is also included for 17,580 acres on Fort Berthold and Standing Rock Indian Reservations and for 28,000 acres in unspecified areas but not located in the Hudson Bay, Devils Lake, or James River drainages. Irrigation facilities to service those lands in the specified areas in central and eastern North Dakota include McLean, Burleigh, Sheridan, Wells, Foster, Stutsman, LaMoure, and Dickey Counties. The reformulation plan is multipurpose and would provide municipal, rural, and industrial water service to as many as 130 towns and service areas throughout North Dakota and three Indian Reservations, including delivery of 100 cfs to the cities of Fargo, Grand Forks, and surrounding areas on the Sheyenne River. Water delivered into the Hudson Bay drainage would be treated to avoid biota transfer to Canada. Recreation facilities are planned in 11 counties throughout North Dakota. A wildlife mitigation and enhancement plan, including enhancement of 36,000 acres, a wetland trust, and mitigation of project environmental impacts through acre-for-acre basis based on ecological equivalency, to be done concurrent with project construction as well as flood control are also provided.

THE COMMISSION PLAN AS MODIFIED: The Garrison Diversion Unit Commission was appointed by the Secretary in accordance with Title II, Section 207, of Public Law 98-360. The Commission was established to examine the contemporary water needs of North Dakota and propose development alternatives which would lead to early resolution of problems identified with the previously authorized 250,000-acre plan. The Commission submitted conclusions and recommendations to the Secretary in their final report dated December 20, 1984. The Garrison Diversion Unit Reformulation Act of 1986 amends selected portions of the 1965 Garrison Reauthorization Act and authorizes construction of the project substantially in accordance with the Commission recommendations. The Reformulation Act also provides for the following: Specific deauthorization of 922,910 acres of previously authorized irrigation; utilizing the State MR&I proposal which includes up to $200 million Federal grant funds; sizing certain main supply works to only that capacity necessary to service the authorized project; retaining the status of Sheyenne Lake National Wildlife Refuge until at some future time the Lonetree Dam and Reservoir is deemed to be necessary and built; eliminating funding constraints on mitigation; eliminating mitigation credit for reservoir sites; requires purchase of up to 5,000 acres in the Kraft and Pickell Slough areas; requiring special studies on the James River drainage basin with a report to Congress by September 1989; prohibiting construction in irrigation areas until after September 1990; substituting 28,000 acres of undefined irrigation acres and transferring 4,000 irrigation acres to the West Oakes Extension Area to replace 32,000 acres previously specified in the New Rockford Extension Area; requiring a 10 percent surplus crop production charge for growing basic agricultural commodities on project lands; limiting the authorized ceiling and omitting indexing of costs; and establishing a wildlife trust fund involving both Federal and State funding. Details of the Reformulation Act of 1986 are contained in House Report 99-525 dated April 9, 1986.

CANADIAN CONCERNS: The Canadian Government's support for the reformulated project was indicated by Diplomatic Note No.201 dated March 26, 1985, and in letters commenting on the 1986 draft Environmental Statement (letters dated April 29, 1986, from Saskatchewan Premier Grant Devine, and April 24, 1986, from Manitoba Minister of Natural Resources Leonard E. Harapiak). Canadian Diplomatic Note No. 177, dated July 2, 1987, transmitted technical comments on the Final Supplement to the Environmental Statement and stressed two items. First, Canada is concerned that this Supplement does not address adequately many of Canada's concerns about biota transfers from the Missouri River to the Hudson Bay drainage; and second, Canada proposes a joint consultative group meeting to discuss this and other concerns. The Bureau is reviewing the technical comments and plans a joint meeting with Canadian representatives.

Concerns which would require future consultations include the location of Sykeston Canal; irrigation in several of the irrigation areas including Lincoln Valley, Harvey Pumping, and New Rockford; the Robinson Coulee diversion proposal; the operation of the Sheyenne River Water Treatment Facility; the Devils Lake Basin; M&I systems which convey Missouri River water into the Hudson Bay drainage; and the Coal Mine Lake fishery.

The Garrison Joint Technical Committee has been reestablished and is to meet in mid-January 1990 in Winnipeg, Manitoba, to discuss mutual United States and Canadian concerns.

OTHER INFORMATION: A detailed plan is being developed to describe an orderly termination of project activities. This plan will include utilizing unobligated FY 1990 funds in FY 1991 to provide for activities involved with the orderly termination of work on the project and for site security and public safety at project facilities.

Footnotes:

1/ Completion date cannot be determined due to termination of project activities.

2/ Lands included in the 250,000-acre plan were certified for gravity irrigation in March 1966. Recertification would be required because of the change from gravity to sprinkler irrigation. The 5,000 acres for the Oakes test area were recertified in April 1981. Other lands are scheduled to be recertified by September 1990.

3/ Definite Plan Report for the 250,000-acre plan was approved February 21, 1966. The Garrison Diversion Unit Commission proposed an alternate plan in its report dated December 20, 1984. Definite Plan Report Supplement not required as project plan has been defined in Public Law 99-294.

4/ Benefit cost ratios decreased from 1.2 and 1.7 in the FY 1990 Budget Justifications to 1.1 and 1.6 in FY 1991 because costs increased and benefits did not change. The ratios were computed using the authorized interest rate of 3.125 percent.

PROJECT DATA SHEET - 4
Pick-Sloan Missouri Basin Program
Garrison Diversion Unit, North Dakota

Footnotes: (continued)

5/ Includes municipal, rural, and industrial water supply ($66,670,000); non-Federal recreation lands ($6,850,000); funds advanced by the Garrison Diversion Conservancy District ($207,966); Wetlands Trust ($1,200,000); and rounding ($34).

6/ Includes assigned costs of Pick-Sloan Missouri Basin Program power and mainstem storage of $62,307,000; reimbursable interest during construction for municipal, rural, and industrial water supply of $4,171,000; highway improvement costs of $4,650,000; Jamestown power assignment of $38,000 and $48 rounding.

7/ The methodology of cost allocation has not been modified. An explanation of the changes in allocations between FY 1990 and FY 1991 is as follows:

Allocation	FY 1990 Estimate	FY 1991 Estimate
Irrigation	$789,518,000	$831,831,000
Power	38,000	38,000
MR&I Water	366,634,000	373,292,000
Recreation	19,140,000	20,326,000
Fish and Wildlife	107,169,000	73,600,000 a/
Flood Control	2,873,000	3,499,000
Highway Improvement	4,650,000	4,650,000
Other:		
Cultural Resources	2,400,000	3,221,000
Wetlands Trust	12,000,000	13,200,000
James River Comp. Study	11,088,000	8,152,000
Unused Facilities	18,315,000	53,153,000 a/
Excess Capacity	188,419,000	197,104,000
Subtotal, Other	232,222,000	274,830,000
Total	$1,522,244,000	$1,582,066,000 b/

PROJECT DATA SHEET - 5
Pick-Sloan Missouri Basin Program
Garrison Diversion Unit, North Dakota

Footnotes: (Continued)

Explanation	Amount of Change
Changes due to cost indexing	$ 8,790,000
Additional facilities required by Reformulation Act .	24,190,000
New cost estimates	12,750,000
Reanalysis of minor contracts and noncontract costs .	11,100,000
Wetlands trust cost sharing	1,200,000
Increase in assigned cost and reimbursable IDC	1,792,000
Total	$59,822,000

a/ The cost allocation was revised to account for changes in plan formulation and to correctly account for sunk costs associated with Lonetree Reservoir. The House Committee Report 99-525 indicates that the cost of facilities not associated with the reformulated project, which includes Hudson Bay facilities and Lonetree Dam, are to be reimbursed under current Reclamation repayment policy. The sunk cost of Lonetree Damsite ($34,838,000) was initially included in Fish and Wildlife Enhancement after the Lonetree Reservoir lands were transferred to this use. Following further review of the committee report cited above, the sunk costs were moved from the Fish and Wildlife enhancement totals and included with the other sunk costs of unused facilities as directed in the report.

b/ Reclamation, in accordance with a recommendation by the Department Inspector General, is reevaluating its approach for determining allocations in the Garrison Diversion Unit. This reevaluation, originally scheduled for completion in June 1990, will be discontinued due to termination of project activities.

8/ Includes non-Indian irrigation $751,162,000 and Indian irrigation $80,669,000.

9/ Includes non-Indian MR&I $350,689,000 and Indian MR&I $22,603,000.

10/ Represents $3,221,000 for cultural resources activities, Public Law 93-291; $13,200,000 for Wetlands Trust; $8,152,000 for James River Comprehensive Study, $197,104,000 in excess capacity, and $53,153,000 in sunk costs for facilities not associated with the reformulated plan.

11/ The scheduled amounts to be repaid by irrigators and municipal, rural, and industrial water interests will be covered by contracts before construction on these areas begin. These amounts exclude the surplus crop production charge for delivery of project water to crops determined to be in excess of normal supply.

Footnotes: (continued)

12/ Includes $38,000 power assignment from Jamestown Dam and $740,918,000 in Irrigation Aid. The amount to be repaid by power is currently identified for repayment from net power revenues generated by the Pick-Sloan Missouri Basin Program power rate. The Garrison Diversion Unit Reformulation Act of 1986 provides that costs allocated to irrigation beyond the ability of the irrigators to repay will be repaid from power revenues.

13/ Sunk costs for facilities not associated with the reformulated project are to be reimbursed under current Reclamation repayment policy. Previously only the costs associated with Hudson Bay facilities were carried in this category. In this estimate the sunk costs of Lonetree Reservoir site, estimated at $34,837,529 have been added.

14/ Non-Federal contributions include $66,670,000 for municipal, rural, and industrial water systems; $6,850,000 for non-Federal recreation contributions; $207,966 advanced by the Garrison Diversion Conservancy District for construction of the District headquarters building; $1,200,000 for Wetlands Trust; and $34 for rounding.

15/ The Reformulation Act directs that repayment for irrigation units developed within the boundaries of the Fort Berthold and Standing Rock Indian Reservations shall be made pursuant to the Leavitt Act (25 U.S.C.386.a).

16/ Estimated nonreimbursable costs include $73,600,000 fish and wildlife, $13,476,000 recreation, $3,499,000 flood control, $4,650,000 for construction of highways to current standards under Public Law 93-251, $3,221,000 for archeological and historical preservation activities under Public Law 93-291, $12,000,000 for Wetlands Trust, $8,152,000 for James River Comprehensive Study, $200,000,000 for non-Indian MR&I, $40,500,000 for Sheyenne River release facility, $197,104,000 for excess capacity, and $22,603,000 for Indian MR&I.

17/ The amount is based on 113,360 acres of non-Indian owned acreage. Under the Leavitt Act, the 17,580 acres under Indian ownership are exempt from repayment liability.

PROJECT DATA SHEET - 7
Pick-Sloan Missouri Basin Program
Garrison Diversion Unit, North Dakota

Footnotes: (continued)

18/ Projectwide final environmental statement on the 250,000-acre plan was filed with Council on Environmental Quality January 10, 1974. Supplemental - Fish and Wildlife filed with Council on Environmental Quality on May 3, 1974. Final comprehensive supplemental to Final Environmental Statement filed with Environmental Protection Agency on March 7, 1979. The Final Supplemental Environmental Statement on features for initial development of 85,000 acres on the 250,000-acre plan was filed with the Environmental Protection Agency on July 15, 1983.

19/ Appropriations authorized by Public Law 99-294 are $679,840,000 in addition to amounts previously expended under Public Law 89-108, totaling $275,240,000. The comparable Federal obligation is $1,428,480,000, which exceeds the appropriation ceiling by more than the amount of contingencies included in the obligation. House Report 99-525, which supports Public Law 99-294, states:

> "The Committee notes that these funds would provide sufficient authorization for the construction of all the supply works and only $100 million of the total $322 million required to complete construction of the irrigation service facilities. This will mean that an increase in authorizations will be required in order to complete the irrigation service areas, as authorized by H.R.1116. The Committee believes this is the best way to ensure oversight of the construction progress on the project. In addition, the Committee would note that the authorization of appropriation figures are not indexed to increase with inflation. The authorization of appropriations are not indexed in order to force additional enactment of authorizations at some future date. This will ensure the proper oversight and involvement of the authorizing committees."

PHYSICAL DATA ON STRUCTURES - 8
PICK-SLOAN MISSOURI BASIN PROGRAM
GARRISON DIVERSION UNIT, NORTH DAKOTA

COMPLETED WORK:

Jamestown Reservoir and Dam

Dam
Type - earthfill
Hydraulic Height - 64 feet
Crest Length - 1,420 feet
Base Width - 780 feet

Spillway:
Type - Morning glory
Design Discharge - 2,930 cubic feet per second

Reservoir Capacity
Total Capacity - 380,000 feet

CONSTRUCTION PROGRAM:

Principal Supply Works

Snake Creek Pumping Plant
Three Units - 8,000 hp

Capacity: 683.3 cubic feet per second unit

McClusky Canal
Length - 73.6 miles
Bottom Width - 25 feet
Water Depth - 17.3 feet

Capacity: 1,950 cubic feet per second

Sykeston Canal
Length - 26.0 miles
Bottom width - 38 feet
Water depth - 9.2 feet

Capacity: 1,000 cubic feet per second

McClusky Canal Area Irrigation
Distribution System - 6 miles pipe
Drains - 50 miles pipe
Irrigation - 4,000 acres

PHYSICAL DATA ON STRUCTURES - 9
PICK-SLOAN MISSOURI BASIN PROGRAM
GARRISON DIVERSION UNIT, NORTH DAKOTA

Oakes Section

Oakes (West Side) Test Area
Service area 5,000 acres (designed to serve 7,800 acres).

Oakes Pumping Plant
Eight units - horsepower has not been determined

Capacity: Three units at 88 cubic feet per second each
Five units at 57 cubic feet per second

West Side Irrigation Facilities 1/
Distribution System - 51 miles
Drains - 121 miles
Irrigation - 14,660 acres

West Oakes Extension Area
Distribution System - 5.1 miles
Drains - 121 miles
Irrigation - 4,000 acres

1/ West Oakes 5,000-acre test area is not included in the total for West Side irrigation facilities.

Oakes Section (Continued)

Oakes Canal

Capacity: 200 cubic feet per second

Offstream Storage or Groundwater Recharge

Capacity: 36,500 acre-feet

LaMoure Section

LaMoure Irrigation Facilities
Distribution System - 39 miles
Drains - 67 miles
Irrigation - 13,350 acres

Central North Dakota Section

New Rockford Canal
Length - 58.5 miles
Bottom Width - Reaches 1 and 2 - 44 feet
Water Depth - Reaches 1 and 2 - 10.4 feet

Capacity: 1,600 to 800 cubic feet per second

New Rockford Canal Irrigation System
Distribution System - 2 miles pipe
Drains - 15 miles pipe
Irrigation - 1,200 acres

James River Feeder Canal
Length - 2.6 miles
Bottom Width - 22.0 feet
Water Depth - 5.7 feet

Capacity: 450 cubic feet per second

Upper James River Improvement
Length - 3.3 miles

Capacity: 450 cubic feet per second

Lower James River Improvement
Length - 5.1 miles

Capacity: 450 cubic feet per second

Central North Dakota Section (Continued)

New Rockford Irrigation Area
Distribution System - 44 miles
Drains - 179 miles
Irrigation - 20,935 acres

Lincoln Valley Irrigation Area
Distribution System - 15 miles
Drains - 108 miles
Irrigation - 6,515 acres

Turtle Lake Irrigation Facilities
Distribution System - 5 miles open - 25 miles pipe
Drains - 12 miles open - 96 miles pipe
Irrigation - 13,700 acres

Harvey Pumping Irrigation Facilities
Distribution System - 3 miles pipe
Drains - 25 miles pipe
Irrigation - 2,000 acres

Irrigation Other Areas in North Dakota 1/
Irrigation - 28,000 acres

1/ Areas have not yet been defined.

PHYSICAL DATA ON STRUCTURES - 12
PICK-SLOAN MISSOURI BASIN PROGRAM
GARRISON DIVERSION UNIT, NORTH DAKOTA

Indian Missouri River Pumping Irrigation Area

Lucky Mound

Distribution System - 19 miles pipe
Drains - 50 miles pipe
Irrigation - 7,700 acres

Upper Six Mile Creek

Distribution System - 19 miles pipe
Drains - 49 miles pipe
Irrigation - 7,500 acres

Fort Yates

Distribution System - 6 miles pipe
Drains - 16 miles pipe
Irrigation - 2,380 acres

Domestic and Rural Water

Municipal, industrial, and rural water systems

Capacity: 110,000 acre-feet

Land and Rights

Quantity - 330,800 acres
Total Estimated Cost - $60,895,021
Cost Per Acre - $184
Acquisition - 46 percent complete as of September 30, 1989

Relocations

Total Estimated Cost - $15,390,000
Percent Complete - 35 percent complete as of September 30, 1989

Items	Length (miles)	Total Cost	Est. Cost to September 30, 1989
County and State Highways	77	$12,310,000	$5,040,000
Utilities	139	3,080,000	380,000
TOTAL		$15,390,000 1/	$5,420,000

1/ Due to the uncertainty of project construction and selection of precise irrigation areas, this total will not be changed until a more firm determination on project direction is made.

Appropriation Title: Construction Program

PICK-SLOAN MISSOURI BASIN PROGRAM
GARRISON DIVERSION UNIT, NORTH DAKOTA - 13

FISCAL YEAR 1991

Work Proposed	Program
Available FY 1990 funds will be utilized in FY 1991 to provide for activities involved with the orderly termination of project activities and for site security and public safety at project facilities.	currently undetermined

GARRISON DIVERSION UNIT, P-S
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

	PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1	* CONSTRUCTION COSTS						
2	-COMPLETED WORK-						
3	** COMPLETED FEATURES						
4			3,727,379	3,727,379			
5	-TOTAL FOR COMPLETED WORK-		3,727,379	3,727,379			
6	* CONSTRUCTION COSTS						
7	** SUPPLY SYSTEM						
8	*** SNAKE CREEK PUMPING PLANT						
9			21,000,000	20,340,706	100,000		559,294
10	*** MCCLUSKY CANAL						
11			135,450,000	96,252,420	1,500,000		37,697,580
12	*** SYKESTON CANAL						
13			54,060,000	828,363	100,000		53,131,637
14	*** HUDSON BAY FEATUR/DEAUTHORIZED						
15			18,315,328	18,315,328			
16	*** OFFSTREAM STORAGE						
17			60,850,000	1,610,867	10,000		59,229,133
18	*** NEW ROCKFORD CANAL						
19			71,982,762	39,933,883	8,700,000		23,348,879
20	*** JAMES RIVER FEEDER CANAL						
21			7,590,000	618,692	10,000		6,961,308
22	*** JAMES RIVER IMPROVEMENT						
23			37,780,000	3,215,419	10,000		34,554,581
24	** SUPPLY SYSTEM		407,028,090	181,115,678	10,430,000		215,482,412
25	** IRRIGATION FAC.-NON INDIAN						
26	*** MCCLUSKY CANAL AREA IRRIGATION						
27			18,820,000		10,000		18,810,000
28	*** OAKES TEST AREA						
29			48,980,000	37,485,679	1,100,000		10,394,321
30	*** OAKES IRRIGATION FACILITIES						
31			58,160,000	9,502,046	10,000		48,647,954

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GARRISON DIVERSION UNIT, P-S
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

	PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1	*** LAMOURE IRRIGATION FACILITIES						
2			43,040,000	3,184,486	10,000		39,845,514
3	*** NEW ROCKFORD IRRIGATION FACIL.						
4			88,360,000	5,545,991	10,000		82,804,009
5	*** NEW ROCKFORD CANAL AREA IRRIG.						
6			4,670,000		10,000		4,660,000
7	*** LINCOLN VALLEY IRRIG.FACIL.						
8			30,400,000	1,148,873	10,000		29,241,127
9	*** TURTLE LAKE IRRIG.FACIL.						
10			45,670,000		100,000		45,570,000
11	*** HARVEY PUMPING IRRIG. FACIL.						
12			8,730,000		10,000		8,720,000
13	*** IRRIGATION OTHER AREAS IN N.D.						
14			161,780,000		100,000		161,680,000
15	** IRRIGATION FAC.-NON INDIAN		508,610,000	56,867,075	1,370,000		450,372,925
16	** IRRIGATION FACILITIES - INDIAN						
17	*** LUCKY MOUND						
18			30,000,000	285,039	10,000		29,704,961
19	*** UPPER SIX MILE CREEK						
20			30,000,000	232,305	10,000		29,757,695
21	*** FORT YATES						
22			7,910,000	638,623	10,000		7,261,377
23	** IRRIGATION FACILITIES - INDIAN		67,910,000	1,155,967	30,000		66,724,033
24	** DOMESTIC INDUST. RURAL WATER						
25	*** MR I AND RURAL WATER						
26			327,670,000	69,335,795	14,595,111		243,739,094
27	** DOMESTIC INDUST. RURAL WATER		327,670,000	69,335,795	14,595,111		243,739,094
28	** TRUST FUNDS-FEDERAL						
29	*** WETLANDS TRUST FUND						
30			13,200,000	3,500,000	900,000		8,800,000
31	** TRUST FUNDS-FEDERAL		13,200,000	3,500,000	900,000		8,800,000
32	** GENERAL FACILITIES						
33	*** PERMANENT OPERATING FACILITIES						
34			23,780,000	6,801,826	100,000		16,878,174

GARRISON DIVERSION UNIT, P-S
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1 *** F WL MITIGATION ENHACEMENT						
2		136,930,000	60,216,971	4,400,000		72,313,029
3 *** RECEATION FACILITIES						
4		13,700,000	5,523,427	1,200,000		6,976,573
5 ** GENERAL FACILITIES		174,410,000	72,542,224	5,700,000		96,167,776
6 ** SERVICE FACIL. DEPR. SALVAGE						
7 *** SERVICE FACILITIES						
8		3,259,565	2,610,088			649,477
9 *** DEPRECIATION						
10		2,799,703-	2,799,703-			
11 *** SALVAGE						
12		502,483-	502,483-			
13 ** SERVICE FACIL. DEPR. SALVAGE		42,621-	692,098-			649,477
14 ** OTHER PROJECT FACILITIES						
15 *** OTHER PROJECT COSTS						
16		8,387,070	7,387,070	100,000		900,000
17 ** OTHER PROJECT FACILITIES		8,387,070	7,387,070	100,000		900,000
18 * CONSTRUCTION COSTS		1,510,899,918	394,939,090	33,125,111		1,082,835,717
19 TOTAL PROGRAM COST		1,510,899,918	394,939,090	33,125,111		1,082,835,717
20 OTHER CONSOL. EXPEND & CREDIT		7,491,952-	5,866,885-			1,625,067-
21 TOTAL EXPENDITURES		1,503,407,966	389,072,205	33,125,111		1,081,210,650
22 NONFEDERAL CASH CONTRIBUTIONS		207,966-	207,966-			
23 NONFEDERAL NONCASH CONTRIBUTION		74,720,000-	29,640,750-	2,550,000-		42,529,250-
24 TOTAL FEDERAL EXPENDITURES		1,428,480,000	359,223,489	30,575,111		1,038,681,400
25 TOTAL RECLAMATION EXPENDITURES		1,428,480,000	359,223,489	30,575,111		1,038,681,400
26 UNDELIVERED ORDERS			995,111	995,111-		
27 TOTAL RECLAMATION OBLIGATIONS		1,428,480,000	360,218,600	29,580,000		1,038,681,400

GARRISON DIVERSION UNIT, P-S
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1 UNDERFINANCING				3,000,000-		3,000,000
2 TOTAL FUNDED OBLIGATIONS		1,428,480,000	360,218,600	26,580,000		1,041,681,400
3 METHOD OF FINANCING						
4 APPROPRIATION AVAILABLE & REQD				26,580,000		1,041,681,400

REGION: Great Plains

PROJECT DATA SHEET

PROJECT AND STATE: PICK-SLOAN MISSOURI BASIN PROGRAM BELLE FOURCHE UNIT, SOUTH DAKOTA		Completion Date 1994	% Complete 24	Date 01/31/90
AUTHORIZATION: Public Law 98-157, November 17, 1983		BENEFIT COST RATIOS		
		Based on Direct Benefits	Based on Total Benefits	Date
LAND CERTIFICATION: None required	DEFINITE PLAN REPORT: None required 1/	2/	2/	

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 13/	$ 49,256,000	Allotments to September 30, 1989	$ 11,056,693
		Allotments for FY 1990	6,645,000
Net Property and Other Transfers:			
Federal Participation 3/	7,500,000	Allotments to Date	17,701,693
Non-Federal Participation		Allotments Required for FY 1991	8,024,000
Adjustment			
Total to be Allocated	$ 56,756,000	Balance to Complete after FY 1991	$23,530,307

ALLOCATIONS 4/		REPAYMENT		AMOUNTS PER ACRE			
Irrigation 5/	$53,194,383	Amount Repaid of Irrigators 7/	$ 9,261,000	Irrig. Invest. per Acre	$932	Payment Capacity per acre 10/	$15.39
Power		Amount Repaid by Power 8/	43,933,000	Repayment of Investment per Acre:		Annual Charges:	
M & I Water		Amount Repaid by M&I Water		By Irrigators	162	O & M 11/	10.50
Recreation				By Power Revenues	770	Construction 12/	4.89
F & WL				By M&I Water Users			
Flood Control							
Safety of Dams	1,918,534						
Other 6/	1,643,083	Nonreimbursable 9/	3,562,000				
Total	$ 56,756,000	Total	$ 56,756,000			Total	$15.39

STATUS OF REPAYMENT CONTRACT: Repayment contract with Belle Fourche Irrigation District was executed on October 10, 1984, and validated November 2, 1984.

STATUS OF NEPA COMPLIANCE: Projectwide - Finding of No Significant Impact (FONSI UM 80-103) signed June 30, 1980.

DESCRIPTION: The project is located in Butte and Meade Counties of western South Dakota. Construction of the single purpose originally authorized project was completed in 1914 and furnishes a full supply of irrigation water to 57,068 acres of irrigable land. The principal crops grown on the project are alfalfa, hay, and corn. Other crops include oats, barley, and forage crops consisting of silage and grass hay. Most crops are used extensively for livestock feeding in the area. Rehabilitation and betterment construction was accomplished from 1950 to 1953. It consisted of replacement of valves in outlet works of the dam, replacement of major structures in canals and laterals, and improvement of the drainage system. Further modernization and improvement of project facilities is included in the legislation reauthorizing the general plan as a unit of Pick-Sloan Missouri Basin Program. This reauthorized project will (1) restore the reliability of the system.

PROJECT DATA SHEET - 2
PICK-SLOAN MISSOURI BASIN PROGRAM
BELLE FOURCHE UNIT, SOUTH DAKOTA

STATUS OF NEPA COMPLIANCE (continued): (2) reduce annual operation and maintenance costs, (3) conserve irrigation water by a reduction of seepage losses and operational wastes, (4) provide measuring devices for the equitable and efficient distribution of the water supply, (5) provide safety features for the protection of human life, (6) restore design capacity to the system to avoid overloading it and thus eliminate the risk of system failure, (7) reclaim agricultural lands affected by seepage losses, and (8) ensure the continued social and economic welfare of the area.

OTHER INFORMATION: Funds were first appropriated under the General Investigations appropriations in FY 1976 for preparation of a report to describe a rehabilitation and betterment program. This report was completed in January 1981. Funds to initiate preconstruction activities for the modernization and improvement of project facilities as a unit of the Pick-Sloan Missouri Basin Program were appropriated in FY 1985.

Footnotes:

1/ Rehabilitation and Betterment Report was completed January 10, 1981.

2/ There was no benefit-cost ratio derived for use in the reauthorization process for the Belle Fourche Unit (P.L. 98-157). Studies, completed prior to reauthorization, were for a loan under the Rehabilitation and Betterment Act (63 Stat. 724 as amended and supplemented) which requires no benefit-cost ratio.

3/ Includes $7,354,364 for completed features, $130,000 for preauthorization investigations, $15,375 for total credits and other expenditures, and $261 for rounding.

4/ The methodology of cost allocation has not been modified. An explanation of the changes in allocations between FY 1990 and FY 1991 is as follows:

Allocation	FY 1990 Estimate	FY 1991 Estimate
Irrigation	$52,438,000	$53,194,383
Safety of Dams	1,918,534	1,918,534
Other	1,643,466	1,643,083
Total	$56,000,000	$56,756,000

PROJECT DATA SHEET - 3
PICK-SLOAN MISSOURI BASIN PROGRAM
BELLE FOURCHE UNIT, SOUTH DAKOTA

Footnotes (continued)

Explanation	Amount of Change
Changes in Cost Estimates (Oct. 1989 to Oct. 1990) due to Cost Indexing	$756,000
Total	$756,000

5/ Includes $3,922,747 from previous construction appropriations and $49,271,636 for this construction program.

6/ Includes $130,000 for preauthorization investigations, $33,783 for recreation facilities and $1,479,300 of charge-offs authorized by Congress.

7/ The amount to be repaid is covered by existing contracts with the project beneficiaries.

8/ The amount to be repaid by power is currently identified for repayment from net power revenues generated by the Pick-Sloan Missouri Basin Program power rate. The current amount reflects existing contracts with project beneficiaries for the work authorized under the Pick-Sloan Missouri Basin Program.

9/ Includes $1,918,534 allocated to safety of dams, $130,000 for preauthorization investigations, $33,783 for recreation facilities, $1,479,300 of charge-offs authorized by Congress, and $+383 for rounding.

10/ Payment capacity was determined in 1981 and is shown in the "Report on Proposed Rehabilitation and Betterment Program, Belle Fourche Project, South Dakota," and is the basis of the current repayment contract.

11/ Current operation, maintenance and replacement costs as reported by the Belle Fourche Irrigation District.

12/ Current repayment amounts to $1.17 per acre and will continue until completion of construction. After construction is complete, repayment is estimated at $4.89 per acre.

13/ Appropriations authorized are $49,256,000 (October 1990). This authorization is adequate to cover the project as currently proposed.

PROJECT DATA SHEET - 4
PICK-SLOAN MISSOURI BASIN PROGRAM
BELLE FOURCHE UNIT, SOUTH DAKOTA

COMPLETED WORK:

Belle Fourche Dam

Dam:
Type - homogeneous earthfill
Crest Length - 6,262 feet
Structural height - 122 feet
Base width (maximum) - 650 feet

Spillway:
Type - Grass-lined channel with uncontrolled crest
Design Discharge - 4,500 cubic feet per second

Drainage System
Drains
Open - 225 miles
Closed - 7 miles

Capacity:
Total capacity - 192,000 acre-feet

CONSTRUCTION PROGRAM:

Belle Fourche Diversion Dam (original construction)

Dam:
Type - Concrete gravity ogee weir with flanking earth dikes

Structural height - 36 feet
Weir crest length - 400 feet
Total length - 2,523 feet

Diversion Works:
Sluice gates - three slide gates, each 5 by 10 feet

Outlet works - seven slide gates, each 5 by 10 feet
Diversion capacity - 3,150 cubic feet per second

PHYSICAL DATA ON STRUCTURES - 5
PICK-SLOAN MISSOURI BASIN PROGRAM
BELLE FOURCHE UNIT, SOUTH DAKOTA

CONSTRUCTION PROGRAM (continued):

Carriage Facilities

Inlet Canal (original construction)
Length - 6.5 miles
Maximum bottom width - 40.0 feet
Water depth - 5.0 feet

Capacity
1,300 cubic feet per second

North Canal (original construction)
Length - 43.0 miles
Maximum bottom width - 30.0 feet
Water depth - 5.0 feet

Capacity
600 cubic feet per second

South Canal (original construction)
Length - 44.0 miles
Maximum bottom width - 18.0 feet
Water depth - 5.0 feet

Capacity
325 cubic feet per second

Laterals
Length - 201 miles [1]

Irrigation:
57,068 acres

Capacity:
10 to 125 cubic feet per second

Relocations
None required

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[1] Length to be rehabilitated. Total of laterals on project is 450 miles.

Appropriation Title: Construction Program

PICK-SLOAN MISSOURI BASIN PROGRAM
BELLE FOURCHE UNIT, SOUTH DAKOTA - 6

FISCAL YEAR 1991

Work Proposed	Program
Belle Fourche Diversion Dam. - Diversion Dam rehabilitation contract will complete.	$ 723,000
North Canal. - Structure replacement and canal lining of Reach 2 will complete. A contract will be awarded for canal lining on another portion of the North Canal. Design of rehabilitation facilities will continue.	1,400,000
South Canal - Stage 2 canal lining will complete. A contract will be awarded for canal lining on additional portions of the canal. Design of rehabilitation facilities will be initiated.	1,050,000
Laterals. - Installation of distribution pipe by the irrigation district will continue. Lateral rehabilitation, including structure repair and lining, will continue as some lateral work completes and contracts are awarded in other areas. Lateral, Stage 2; Johnson Lateral, Stage 2; and Gregory Lateral.	4,841,000
Fish and Wildlife Facilities. - Minor construction will continue.	10,000
TOTAL	$8,024,000

BELLE FOURCHE UNIT, P-SMBP
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1 * CONSTRUCTION COSTS						
2 ** COMPLETED FACILITIES						
3		7,354,364	7,354,364			
4 ** BELLE FOURCHE DIVERSION DAM						
5		4,707,597	1,384,597	2,600,000	723,000	
6 ** INLET CANAL						
7		1,975,000	17,713			1,957,287
8 ** NORTH CANAL						
9		5,635,000	937,988	118,000	1,400,000	3,179,012
10 ** SOUTH CANAL						
11		6,590,000	621,797	30,000	1,050,000	4,888,203
12 ** LATERALS						
13		29,327,000	7,213,223	4,164,000	4,841,000	13,108,777
14 ** GENERAL PROPERTY						
15		575,000	493,532			81,468
16 ** FISH AND WILDLIFE FACILITIES						
17		395,000	58,245	10,000	10,000	316,755
18 ** SERVICE FACIL. DEPR. / SALVAGE						
19		69,951	66,401	3,550		
20 * CONSTRUCTION COSTS		56,628,912	18,147,860	6,925,550	8,024,000	23,531,502
21 * OTHER PROJECT COSTS						
22		130,000	130,000			
23 TOTAL PROGRAM COST		56,758,912	18,277,860	6,925,550	8,024,000	23,531,502
24 OTHER CONSOL. EXPEND & CREDIT		7,502,912-	7,501,558-	159-		1,195-
25 TOTAL EXPENDITURES		49,256,000	10,776,302	6,925,391	8,024,000	23,530,307
26 TOTAL FEDERAL EXPENDITURES		49,256,000	10,776,302	6,925,391	8,024,000	23,530,307
27 TOTAL RECLAMATION EXPENDITURES		49,256,000	10,776,302	6,925,391	8,024,000	23,530,307

BELLE FOURCHE UNIT, P-SMBP
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1 UNDELIVERED ORDERS			280,391	280,391-		
2 TOTAL RECLAMATION OBLIGATIONS		49,256,000	11,056,693	6,645,000	8,024,000	23,530,307
3 TOTAL FUNDED OBLIGATIONS		49,256,000	11,056,693	6,645,000	8,024,000	23,530,307
4 METHOD OF FINANCING						
5 APPROPRIATION AVAILABLE & REQD				6,645,000	8,024,000	23,530,307

PROJECT DATA SHEET

REGION: Great Plains			
PROJECT AND STATE: WEB RURAL WATER DEVELOPMENT PROJECT, SOUTH DAKOTA	Completion Date 1991 1/	% Complete 85	Date 1/01/90
AUTHORIZATION: Public Law 96-355 dated September 24, 1980, Public Law 97-273 dated September 30, 1982, and Public Law 100-490 dated October 14, 1988.	BENEFIT COST RATIOS		
	Based on Direct Benefits	Based on Total Benefits	Date
LAND CERTIFICATION: None required DEFINITE PLAN REPORT: None required	2/	2/	10/1/90

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 8/	$111,949,857	Allotments to September 30, 1989	$ 98,300,857
Net Property and Other Transfers:		Allotments for FY 1990	12,704,000
Federal Participation			
Non-Federal Participation 3/	5,200,000	Allotments to Date	111,004,857
Adjustment 4/	1,866,143	Allotments Required for FY 1991	945,000
Total to be Allocated	$119,016,000	Balance to Complete after FY 1991	$

ALLOCATIONS 5/		REPAYMENT		AMOUNTS PER ACRE	
Irrigation		Amount Repaid by Irrigators		Irrig. Invest. per Acre ____	Payment Capacity per acre ____
Power		Amount Repaid by Power		Repayment of Investment per Acre:	Annual Charges:
M&I Water	$119,016,000	Amount Repaid by M&I Water 6/	$ 22,271,000	By Irrigators	O&M
Recreation				By Power Revenues	Construction
F&WL				By M&I Water Users	
Flood Control					
Other		Reimbursable 7/	96,745,000		
Total	$119,016,000	Total	$119,016,000		Total

STATUS OF REPAYMENT CONTRACT: Grant agreement with WEB Water Development Association was effective January 6, 1983. This agreement makes available to WEB Association the initial Federal grant for preconstruction activities. A master grant and repayment contract with the WEB Association for remainder of the project was executed on September 29, 1983.

STATUS OF NEPA COMPLIANCE: Project-wide Finding of No Significant Impact (FONSI UM-82-4) was signed September 24, 1982.

DESCRIPTION: The WEB Rural Water Development Project will supply water from Lake Oahe for domestic use to the rural residents and towns in a service area covering over 5,200 square miles in north-central South Dakota. The project will serve portions of 13 counties including Brown, Campbell, Day, Edmunds, Faulk, Hand, McPherson, Potter, Spink, and Walworth. The service area boundaries were determined from the showing of interest provided by good intention fee payments. Fifty-seven towns with a population of 17,124 (1980 census) made preliminary requests for service. Fifty-two towns and bulk users with a population of 19,600 are currently signed up to receive service. An additional 20 a/ towns and developments with a

PROJECT DATA SHEET - 2
WEB Rural Water Development Project, South Dakota

DESCRIPTION (continued): population of 1,600 will be served as individual hookups. A total of 3,885 rural South Dakota households are signed up which represent 85 percent of the potential open county water users in the service area. Provision has also been made to serve 170 rural households in North Dakota. South Dakota and North Dakota rural households have an estimated total population of 12,000. In addition, the project will provide livestock water use equivalent to 532,000 head of livestock.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1981; however, the authorization for this appropriation (Rural Development and Policy Act of 1980) contained two provisos. One provided that "such authorization for appropriations shall not become effective until such time as legislation has been enacted deauthorizing the Oahe Unit." The second provided that if deauthorization of the Oahe Unit "has not been enacted by September 30, 1981, the authorization for appropriations provided for in this subsection shall terminate." Because the Oahe Unit was not deauthorized by September 30, 1981, the availability of the appropriation terminated. Public Law 97-273 dated September 30, 1982, reauthorized the project, authorized the Secretary of the Interior to proceed with development of the project and directed that any funds appropriated for the project in FY 1981 be made available for immediate obligation. Financing of the project consists of grant and loan funds. The Office of the Solicitor, Department of the Interior, determined that a grant to the WEB Rural Water Development Association may exceed 75 percent of planning and development costs and that an interest rate of 5 percent per year be established for the loan funds. Interest during construction will not apply to the grant portion of the project cost.

Footnotes:

a/ Increase due to change in service area.

1/ Project completion delayed one year due to the Association's decision to use maximum allowable appropriation ceiling. This caused a one-year delay in project completion since the FY 1990 program had already been established. Federal funding increased to the full appropriation ceiling amount due to a reduction in non-Federal funds. The project as originally proposed remains unchanged.

2/ Not required by Farmers Home Administration guidelines which are being followed per the authorizing act. Project planning is being performed by the WEB Water Development Association.

3/ Includes $5,200,000 contribution from local funding sources. Reduced from $7,000,000 due to increase in Federal funding which reduced non-Federal requirements. Cash payments will be made to the WEB Water Development Association, not to the Bureau of Reclamation.

4/ Includes $1,567,263 for interest during construction; $298,564 in transfers, credits, and other expenditures; and $+316 for rounding.

PROJECT DATA SHEET - 3
WEB Rural Water Development Project, South Dakota

Footnotes: (continued)

5/ Explanation of changes in allocations from the FY 1990 Budget Justifications:

Allocation	FY 1990 Estimate	FY 1991 Estimate
Municipal, Rural, and Industrial Water	$120,229,000	$119,016,000

Explanation	Amount of Change
Decrease reflects minor adjustment in project estimate . . .	$ 1,213,000

6/ The scheduled amount to be repaid is covered by a contract with project beneficiaries. This is the repayment capability and is noted in the repayment contract as the repayment ceiling.

7/ According to authorizing legislation, Public Law 97-273, grants will be not less than 75 percent of eligible development costs.

8/ Appropriations authorized are $111,950,000 (October 1990). This authorization is adequate to cover the project as currently proposed.

WEB RURAL WATER DEVELOPMENT PROJECT, SOUTH DAKOTA
PHYSICAL DATA ON STRUCTURES - 4

CONSTRUCTION PROGRAM:

Lake Oahe Intake

Type - Vertical caisson 24 feet diameter, 105 feet deep
Inlet - Cylindrical, screened
Intake Pipe - 36 inches diameter, 405 feet long
Water Level - Varies from elevation 1,540 to 1,620 feet above sea level

Water Treatment Plant

Type - Rapid mix, flocculation, clarification, and filtration
Capacity - 7 million gallons per day

Main Pumping Stations

At Intake:	Capacity
Six Units - 1,200 total hp	4,860 gallons per minute
At Treatment Plant:	Capacity:
Four Units - 800 total hp	4,860 gallons per minute

Main Transmission Line

Length - 146 miles 1/
Pipe Size - 14 to 30 inches diameter 1/

Main Storage Reservoir

Total Storage Capacity - 5 million gallons
Type - Concrete

WEB RURAL WATER DEVELOPMENT PROJECT, SOUTH DAKOTA
PHYSICAL DATA ON STRUCTURES - 5

CONSTRUCTION PROGRAM (continued):

Secondary Transmission and Distribution System

Length - 3,850 miles 1/
Pipe Size - 1-1/2 to 12 inches diameter
Storage Reservoirs - 22 1/
Pump Stations - 18 1/

Town System Improvements

Provide controls and improvements necessary to connect WEB to existing distribution systems for 31 towns.

Land and Rights

Quantity - to be acquired as needed (much of easement will be donated or incorporated within highway or utility easements)
Total Estimated Cost - $250,000 (to be refined as investigations progress)
Cost Per Acre - to be determined at the time of acquisition

1/ Increase due to expanded service area.

Appropriation Title: Construction Program

WEB RURAL WATER DEVELOPMENT PROJECT, SOUTH DAKOTA - 6

FISCAL YEAR 1991

Work Proposed	Program
Administration Costs. - Provides for Bureau of Reclamation administration such as review of designs and construction liaison.	$ 160,000
WEB Rural Water Project Construction. - Construction of project features will complete.	785,000
TOTAL	$ 945,000

WEB RURAL WTR DEVELOPMENT PROJ
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1 * CONSTRUCTION PROGRAM						
2 ** ADMINISTRATION COSTS						
3		2,649,206	2,328,985	160,221	160,000	
4 ** AVAILABLE FOR CONSTRUCTION						
5		116,331,319	97,802,319	17,744,000	785,000	
6 * CONSTRUCTION PROGRAM		118,980,525	100,131,304	17,904,221	945,000	
7 TOTAL PROGRAM COST		118,980,525	100,131,304	17,904,221	945,000	
8 OTHER CONSOL. EXPEND & CREDIT		1,830,668-	1,830,668-			
9 TOTAL EXPENDITURES		117,149,857	98,300,636	17,904,221	945,000	
10 NONFEDERAL NONCASH CONTRIBUTION		5,200,000-		5,200,000-		
11 TOTAL FEDERAL EXPENDITURES		111,949,857	98,300,636	12,704,221	945,000	
12 TOTAL RECLAMATION EXPENDITURES		111,949,857	98,300,636	12,704,221	945,000	
13 UNDELIVERED ORDERS			221	221-		
14 TOTAL RECLAMATION OBLIGATIONS		111,949,857	98,300,857	12,704,000	945,000	
15 TOTAL FUNDED OBLIGATIONS		111,949,857	98,300,857	12,704,000	945,000	
16 METHOD OF FINANCING						
17 APPROPRIATION AVAILABLE & REQD				12,704,000	945,000	

PROJECT DATA SHEET

REGION:
Pacific Northwest

PROJECT AND STATE:
COLUMBIA BASIN PROJECT, WASHINGTON

Completion Date	% Complete	Date
1/	2/ 73	1/31/90

AUTHORIZATION:
Public Law 409, August 30, 1935, and subsequent acts.
(Third Powerplant - Public law 89-448, June 14, 1966)

BENEFIT COST RATIOS		
Based on Direct Benefits	Based on Total Benefits	Date
3/	3/	
4.5	4.7	10/1/90

LAND CERTIFICATION:
Aug. 11, 1952 and April 7, 1976

DEFINITE PLAN REPORT:
4/

SUMMARIZED FINANCIAL DATA

Total Federal Obligations(Reclamation) 14/	$4,310,476,184	Allotments to September 30, 1989	$1,654,671,494
Total Federal Obligations(Other)		Allotments for FY 1990	15,419,000
Net Property and Other Transfers:			
Federal Participation	9,936,672		
Non-Federal Participation	15,362,000	Allotments to Date	1,670,090,494
Adjustment 5/	47,221,000	Allotments Required for FY 1991	7,248,000
Total to be Allocated	$4,382,995,856	Balance to Complete after FY 1991	$2,633,137,690

ALLOCATIONS 6/	
Irrigation	$3,203,539,000
Power	1,026,604,856
M&I Water	
Recreation	
F&WL	98,024,000
Flood Control	49,466,000
Navigation	1,000,000
State-County	
Other 7/	4,362,000
Total	$4,382,995,856

REPAYMENT	
Amount Repaid by:	
Irrigators 8/9/	$1,011,072,000
Power 10/	3,186,522,856
M&I Water	
Settlement Land Sales	11,500,000
Non-Federal Contributions 11/	15,259,000
Deferred under Leavitt Act 12/	5,790,000
Nonreimbursable 13/	152,852,000
Total	$4,382,995,856

AMOUNTS PER ACRE			
Irrig. Invest/Acre	$2,926	Payment Capacity per Acre-Foot: 8/	
Repayment of Investment per Acre:		Annual Charges:	
By Irrigators 8/	923	O&M	$24.50
By Power Revenues 8/	1,973	Construction	18.70
Indian Irrig.(Def.)	5		
From Settlement Land Sales	11	Total	$43.20
Non-Federal Contrib.	14		

STATUS OF REPAYMENT CONTRACT: Amendatory repayment contracts were executed on December 18, 1968, by the three Columbia Basin irrigation districts. Master water service contracts with the East and Quincy Columbia Basin Irrigation Districts for Bacon Siphon and Tunnel No. 2 water were executed on August 27, 1976. Supplemental repayment contracts would be executed prior to construction of additional irrigation facilities.

STATUS OF NEPA COMPLIANCE: Projectwide final environmental statement was filed with Council on Environmental Quality, February 27, 1976. Statement for the Esquatzel Coulee - Final filed August 18, 1977. Block 26 Laterals - Finding of No Significant Impact approved June 1, 1981. Draft EIS for completion of the project was filed with the Environmental Protection Agency on September 20, 1989, final EIS scheduled to be filed September 1990.

PROJECT DATA SHEET - 2
COLUMBIA BASIN PROJECT, WASHINGTON

DESCRIPTION: The project is located in central Washington, approximately 95 miles west of Spokane, Washington. Project features are located in Okanogan, Douglas, Grant, Franklin, Adams, Walla Walla, Stevens, Ferry, and Lincoln Counties. This is a multipurpose project that provides a power supply of 6,494,000 kilowatts and a full water supply for the irrigation of 1,095,000 acres. The project also provides flood control, fish and wildlife, and navigation benefits. Wheat, alfalfa hay, field corn, potatoes, dry beans, pea seed, barley, processing corn, silage, vegetables and fruit, and pasture are the major crops presently being grown. These crops will continue to be of great importance when the project is mature.

OTHER INFORMATION: Funds to initiate construction of Grand Coulee Dam and appurtenant works were appropriated in FY 1934 (National Industrial Recovery Act Funds) and the Third Powerplant in FY 1967. Irrigation facilities for approximately one-half the project and the Right and Left Powerplants at Grand Coulee have been completed and are in service. Generating Units 19 through 24 of the Third Powerplant are in service.

Footnotes:

1/ Irrigation Facilities - Drains are constructed as the need arises and are scheduled to continue for several years. Further irrigation development is dependent upon the negotiation of revised repayment contracts and cost sharing agreements.

2/ Changed from 75 percent as presented in the fiscal year 1990 Budget Justifications due to increased cost for future irrigation development.

3/ The direct and total benefit-cost ratios of 4.5 and 4.7 compare with 5.4 and 5.6 as presented in the FY 1990 Budget Justifications. The decrease is due to an increase in estimated construction cost for future development of irrigation facilities including future fish and wildlife facilities and increases in the costs for P/G units 7-12, Third Powerplant, and drainage facilities on presently developed lands, and an increase in project operating costs. The ratios were computed using the authorized interest rate of 3 percent for Irrigation Facilities and 3-1/8 percent for the Third Powerplant.

4/ Summary planning report for the previously authorized project facilities was submitted in March 1953 and adopted by the Commissioner in lieu of a Definite Plan Report. The Definite Plan Report for the Third Powerplant was approved March 18, 1968.

5/ Adjustments include operation and maintenance financed additions and improvements to power and multipurpose facilities, credits for sale of property under the Coulee Dam Community Act of 1957, and minor adjustments, all of which total $5,834,000 plus interest during construction of $41,387,000. Interest during construction for economic analysis did not change since the Third Powerplant units are on-line and operational.

Footnotes: (continued)

6/ The methodology of cost allocation has not been modified. An explanation of changes in allocations between FY 1990 and FY 1991 is as follows:

Allocation	FY 1990 estimate	FY 1991 estimate
Irrigation	$2,900,037,000	$3,203,539,000
Power	1,024,422,000	1,026,604,856
Fish and Wildlife	64,136,000	98,024,000
Flood Control	49,466,000	49,466,000
Navigation	1,000,000	1,000,000
Other	4,362,000	4,362,000
Total	$4,043,423,000	$4,382,995,856

Explanation	Amount of Change
Cost indexing (October 1990) -Irrigation Facilities	$ +2,910,000
Changes in quantities or estimates: - Third Powerplant - correction of construction deficiencies, fire protection modifications, riverbank stabilization program, net property and other transfers based on actual accounting data, and revised estimate of minor contracts and noncontract costs. - Irrigation Facilities - West Canal enlargement, Scooteney Park minimum basic health and safety facilities	+2,796,856
Changes based on repricing - Irrigation Facilities - Deferred and Bypassed Lands - Phases I and II, East High Canal - Phases I and II, and East Low Canal - Phases I and II	+333,866,000
Total	$339,572,856

The irrigation allocation increased due to increased costs for future irrigation development primarily due to the effects of repricing, indexing, and a slight increase in estimated drainage costs on existing development, and a slight increase in the costs of P/G units 7-12 allocated to irrigation.

The power allocation increased due to estimated costs for completion of the Third Powerplant, an adjustment in net property and other transfers based on actual accounting data, and a slight increase in costs for P/G units 7-12. The fish and wildlife allocation increased due to revised estimate for costs of wildlife facilities associated with future irrigation development.

Footnotes: (continued)

7/ Includes nonreimbursable expenditures of $177,000 for spillway flood lighting - Grand Coulee Dam (July 2, 1956, 70 Stat, 474,476), $3,685,000 for cultural resource activities (Public Law 93-291), and $500,000 for landslide/Ground-water investigations of Franklin County roads (Public Law 100-516, October 4, 1988).

8/ Existing repayment contracts provide for repayment of $2.63 per acre per year over a 50-year period for all lands within the project. Future repayment contracts for approximately 540,000 acres would require additional payment based on current repayment ability.

9/ The scheduled amount to be repaid on completed facilities is covered by existing contracts with project beneficiaries. Repayment contracts to cover payment capacity and increased repayment on future additions would be executed prior to initiation of construction on those facilities.

10/ Power which is excess to project needs is delivered to and marketed by the Bonneville Power Administration as provided in Executive Order 8526 dated August 26, 1940. Power for project use will be repaid under existing and future water user repayment contracts. Repayment assistance, for the irrigation allocation which is in excess of the water user's repayment ability, is within the limitations established by section 6 of Public Law 89-561 regarding financial assistance to Pacific Northwest Federal Reclamation projects from net revenues of Federal Columbia River Power System.

11/ Includes $15,000,000 contribution by the State of Washington to assist in construction of Bacon Siphon and Tunnel No. 2; $313,440 contributed by the State of Washington to assist in the construction of Grand Coulee Dam, and $48,560 in miscellaneous contributions, less $103,000 non-Federal contribution allocation to flood control included in the total under footnote 12.

12/ Amount of cost allocated to Indian irrigation, the Leavitt Act permits repayment to be deferred as long as the land is in Indian ownership.

13/ Includes flood control $49,466,000; navigation, $1,000,000; spillway flood lighting, $177,000; and nonreimbursable fish and wildlife, $98,024,000; cultural resource activities (Public Law 93-291), $3,685,000; and landslide/ground-water investigations of Franklin County roads, $500,000.

14/ Appropriation authorization covers Third Powerplant only. Refer to Third Powerplant project data sheet for discussion on this point.

PHYSICAL DATA ON STRUCTURES - 5
COLUMBIA BASIN PROJECT, WASHINGTON

COMPLETED WORK:

Grand Coulee Dam (including Third Powerplant Forebay Dam): (Franklin D. Roosevelt Lake)

Dam:	Spillway:	Reservoir Capacity:
Type - Concrete gravity	Type - Gated	Total storage - 9,562,000 acre-feet
Structural height - 550 feet	Design discharge - 1,000,000 cubic feet per second	
Crest length - 5,223 feet		

North Dam: (Banks Lake)

Dam:	Spillway:	Reservoir Capacity:
Type - Zoned earthfill	(None) Water for reservoir provided from Franklin D. Roosevelt Lake by pumping	Total storage - 1,275,000 acre-feet
Structural height - 145 feet		
Crest length - 1,450 feet		

Dry Falls Dam: (Banks Lake)

Dam:	Spillway:	Reservoir Capacity:
Type - Zoned earthfill	(None) Water for reservoir provided from Franklin D. Roosevelt Lake by pumping	See North Dam above as the reservoir is common to both
Structural height - 123 feet		
Crest length - 9,800 feet		

O'Sullivan Dam: (Potholes Reservoir)

Dam:	Spillway:	Reservoir Capacity:
Type - Zoned earthfill	Type - Gated	Total storage - 511,700 acre-feet
Structural height - 200 feet	Design discharge - 29,000 cubic feet per second	
Crest length - 19,000 feet		

Pinto Dam: (Bill Clapp Reservoir)

Dam:	Spillway:	Reservoir Capacity:
Type - Zoned earthfill	Type - Uncontrolled	Total storage - 64,200 acre-feet
Structural height - 130 feet	Design discharge - 11,900 cubic feet per second	
Crest length - 1,900 feet		

PROJECT DATA SHEET

REGION:
Pacific Northwest

PROJECT AND STATE:
COLUMBIA BASIN PROJECT, THIRD POWERPLANT, GRAND COULEE DAM, WASHINGTON

Completion Date	% Complete	Date
1990	99	1/31/90

AUTHORIZATION:
Finding of Feasibility, December 2, 1935
Public Law 89-448, June 4, 1966

BENEFIT COST RATIOS		
Based on Direct Benefits	Based on Total Benefits	Date
1/	1/	
15.1	15.1	10/1/90

LAND CERTIFICATION:
None required

DEFINITE PLAN REPORT:
Approved March 18, 1968

SUMMARIZED FINANCIAL DATA

Total Federal Obligations(Reclamation) 6/	$747,420,184
Total Federal Obligations(Other)	
Net Property and Other Transfers:	
Federal Participation	3,585,672
Non-Federal Participation	
Adjustment 2/	41,387,000
Total to be Allocated	$792,392,856

Allotments to September 30, 1989	$733,075,184
Allotments for FY 1990	10,997,000
Allotments to Date	$744,072,184
Allotments Required for FY 1991	3,348,000
Balance to Complete after FY 1991	

ALLOCATIONS 3/	
Irrigation	
Power	$791,834,856
M&I Water	
Recreation	
F&WL	
Flood Control	
Navigation	
State-County	
Other 4/	558,000
Total	$792,392,856

REPAYMENT	
Amount Repaid by:	
Irrigators	
Power 5/	$791,834,856
M&I Water	
State-County	
Local Interests	
Deferred Use	
Nonreimbursable 4/	558,000
Total	$792,392,856

AMOUNTS PER ACRE

Irrig. Invest/Acre $
Repayment of Investment per Acre:
By Irrigators
By Power Revenues

Payment Capacity per Acre-Foot:
Annual Charges:
O&M
Construction

STATUS OF REPAYMENT CONTRACT: None required.

STATUS OF NEPA COMPLIANCE: Projectwide final environmental statement was filed with Council on Environmental Quality, February 27, 1976. Downstream bank stabilization - final filed March 8, 1982. NEPA decision on installation of overhead lines to the 115 and 230kV switchyards - final filed January 24, 1986.

DESCRIPTION: The Third Powerplant and appurtenant facilities are located in Okanogan, Douglas, and Grant Counties approximately 95 miles west of Spokane, Washington. The powerplant is an addition to the existing facilities at Grand C[illegible]ee Dam and increases the installed capacity by 3,900,000 kilowatts.

PROJECT DATA SHEET - 2
COLUMBIA BASIN PROJECT
THIRD POWERPLANT, WASHINGTON

OTHER INFORMATION: Funds to initiate construction were appropriated in FY 1967.

Footnotes:

1/ The direct and total benefit-cost ratios of 15.1 compare with 15.6 as presented in the FY 1990 Budget Justifications. The decrease is due to an increase in estimated construction costs for completion of the project, and an increase in operating costs. The ratio was computed by using the authorized interest rate of 3-1/8 percent.

2/ Reimbursable interest during construction. Interest during construction for economic analysis did not change since the units are on-line and operational.

3/ The methodology of cost allocation has not been modified. An explanation of changes in allocations between FY 1990 and FY 1991 is as follows:

Allocation	FY 1990 Estimate	FY 1991 Estimate
Power	$790,029,000	$791,834,856
Other	558,000	558,000
Total	$790,587,000	$792,392,856

Explanation	Amount of Change
Increase in power is due to revised costs for completion of the project and an adjustment in net property and other transfers based on actual accounting data.	+1,805,856
Total	$+1,805,856

4/ For cultural resource activities (Public Law 93-291).

5/ Power which is excess to project needs is delivered to and marketed by the Bonneville Power Administration as provided in Executive Order 8526 dated August 26, 1940. Power for project use will be repaid under existing water user repayment contracts.

6/ Appropriations authorized are $1,117,278,000 (October 1990). This authorization is adequate to cover the project as currently proposed.

PHYSICAL DATA ON STRUCTURES - 6
COLUMBIA BASIN PROJECT, WASHINGTON

Grand Coulee Powerplants:

Grand Coulee Powerplant has 18 main units of 125 megawatts and 3 station-service units of 10 megawatts making the total installed capacity 2,280 megawatts. Generating Head - 300 feet.

Switchyards:

Grand Coulee - 3,999,333 kilovolt amperes

Pumping Plants:

Grand Coulee Pumping Plant has a present pumping capacity of 9,040 cubic feet per second utilizing pumping units 1 through 6.

Twenty-two other pumping plants ranging in size from 40 to 460 cubic feet per second.

Pumping/Generating Plant:

Grand coulee Pump/Generating Plant has a present pumping capacity of 10,500 cubic feet per second and a generating capacity of 314 megawatts utilizing pump/generating units 7 through 12. Generating Head - 280 feet.

Main Canal:

Main Canal - 12.9 miles - 20,000 cubic feet per second
Bacon Tunnel No. 1 - 2 miles long - 23.3-foot-diameter horseshoe - 7,250 cubic feet per second
Bacon Siphon No. 1 - 0.2 mile long - 23.3-foot-diameter - 7,250 cubic feet per second
Bacon Tunnel No. 2 - 2 miles long - 28.5-foot-diameter horseshoe - 12,050 cubic feet per second
Bacon Siphon No. 2 - 0.2 mile long - 28-foot-diameter - 12,050 cubic feet per second

Canals:

West Canal - 5,100 cubic feet per second - 96.1 miles
East Low Canal - 4,500 cubic feet per second - 86.8 miles
Potholes Canal - 3,900 cubic feet per second - 62.4 miles
Eltopia Branch Canal - 550 cubic feet per second - 25.0 miles
Wahluke Branch Canal - 2,000 cubic feet per second - 44.0 miles

Lateral Systems:

Various sizes and lengths are in service to 557,530 acres.

Spokane Indian Reservation:

Pipe distribution system to serve 1,700 acres.

CONSTRUCTION PROGRAM

Distribution System: Various sizes and lengths to provide future service to 537,470 acres.

Third Powerplant:

Three Generating Units - 600 megawatts each Three Generating Units - 700 megawatts each
Generating Head - 305 feet

Third Powerplant Switchyard:

Rated at 4,608,000 kilovolt amperes

Appropriation Title: Construction Program

COLUMBIA BASIN PROJECT, WASHINGTON - 8

FISCAL YEAR 1991

Work Proposed	Program
IRRIGATION FACILITIES	
Drainage Construction. - Land acquisition and drainage construction will continue.	$3,081,000
Deferred and Supplemental Construction. - Construction of minimum basic health and safety facilities at Scooteney Park will be completed.	394,000
Other Project Cost. - Administration of project owned settlement land and cultural resource activities will continue. Work will continue to investigate Franklin County, Washington, roads instability problems as directed by Public Law 100-516.	425,000
Subtotal - Irrigation Facilities	$3,900,000
THIRD POWERPLANT	
Third Powerplant. - Excitation Transformer Retrofil, Modifications for fire protection, construction of the engineering building, machine shop additions, and minor work to complete construction will be completed.	$3,348,000
Subtotal - Third Powerplant	$3,348,000
TOTAL	$7,248,000

REGULAR CONSTRUCTION
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

	PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1	COLUMBIA BASIN, IRRIG FACILS		3,563,056,000	921,596,310	4,422,000	3,900,000	2,633,137,690
2	GRAND COULEE, THIRD POWERPLANT		747,420,184	732,542,571	11,529,613	3,348,000	
3	SUBTOTAL		4,310,476,184	1,654,138,881	15,951,613	7,248,000	2,633,137,690
4	TOTAL OBLIGATIONS		4,310,476,184	1,654,138,881	15,951,613	7,248,000	2,633,137,690
5	METHOD OF FINANCING						
6	APPLICATION OF PRIOR YEAR FUNDS				532,613		
7	APPROPRIATION AVAILABLE & REQD				15,419,000	7,248,000	2,633,137,690

GRAND COULEE, THIRD POWERPLANT
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1 * CONSTRUCTION PROGRAM 2 -COMPLETED WORK-						
3 ** FOREBAY DAM 4		51,117,207	51,117,207			
5 ** MODIFICATION LEFT POWERPLANT 6		1,834,555	1,834,555			
7 ** MODIFICATION RIGHT POWERPLANT 8		1,671,273	1,671,273			
9 ** MODIFICATION LEFT SWITCHYARD 10		31,691,237	31,691,237			
11 -TOTAL FOR COMPLETED WORK-		86,314,272	86,314,272			
12 * CONSTRUCTION PROGRAM						
13 ** THIRD POWERPLANT 14		555,368,582	540,197,712	11,822,870	3,348,000	
15 ** THIRD POWERPLANT SWITCHYARD 16		99,407,529	99,126,529	281,000		
17 ** VISITOR FACILITIES 18		6,528,036	6,493,036	35,000		
19 ** SERVICE FACIL. DEPREC. SALVAGE 20		2,829,437	2,423,437	406,000		
21 * CONSTRUCTION PROGRAM		750,447,856	734,554,986	12,544,870	3,348,000	
22 * OTHER PROJECT COSTS 23		558,000	558,000			
24 TOTAL PROGRAM COST		751,005,856	735,112,986	12,544,870	3,348,000	
25 OTHER CONSOL. EXPEND & CREDIT		3,585,672-	2,771,672-	814,000-		
26 TOTAL EXPENDITURES		747,420,184	732,341,314	11,730,870	3,348,000	
27 TOTAL FEDERAL EXPENDITURES		747,420,184	732,341,314	11,730,870	3,348,000	
28 TOTAL RECLAMATION EXPENDITURES		747,420,184	732,341,314	11,730,870	3,348,000	

GRAND COULEE, THIRD POWERPLANT
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1 UNDELIVERED ORDERS			201,257	201,257-		
2 TOTAL RECLAMATION OBLIGATIONS		747,420,184	732,542,571	11,529,613	3,348,000	
3 TOTAL FUNDED OBLIGATIONS		747,420,184	732,542,571	11,529,613	3,348,000	
4 METHOD OF FINANCING						
5 APPLICATION OF PRIOR YEAR FUND				532,613		
6 APPROPRIATION AVAILABLE & REQD				10,997,000	3,348,000	

COLUMBIA BASIN, IRRIG FACILS
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
* CONSTRUCTION PROGRAM						
-COMPLETED WORK-						
** GRAND COULEE DAM/RESERVOIR		161,078,179	161,078,179			
** GRAND COULEE RT/LT POWERPLANTS		107,505,605	107,505,605			
** GRAND COULEE PUMP UNITS 1-6		34,072,353	34,072,353			
** GRAND COULEE PG UKITS 7-12		103,301,359	103,301,359			
** BANKS LAKE		20,095,701	20,095,701			
** BACON SIPHON/TUNNEL 1 AND 2		51,694,023	51,694,023			
** O'SULLIVAN DAM/POTHOLES RES		17,118,240	17,118,240			
** CANALS		136,770,508	136,770,508			
** LATERAL DIST, SYS/57 BLOCKS		129,079,849	129,079,849			
** MAJOR RELIFT PUMP PLANTS/22PPS		18,967,763	18,967,763			
** GENERAL PROPERTY		6,540,054	6,540,054			
** COLVILLE/SOPKANE INDIAM RES		6,544,561	6,544,561			
** OTHER MISCELLANEOUS		8,891,805	8,891,805			
-TOTAL FOR COMPLFTED WORK-		801,660,000	801,660,000			
* CONSTRUCTION PROGRAM						
** FISH AND WILDLIFE FACILITIES		6,244,000	2,610,000			3,634,000

COLUMBIA BASIN, IRRIG FACILS
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

	PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1	** DRAINAGE CONSTRUCTION						
2			168,656,000	113,585,000	3,052,000	3,081,000	48,938,000
3	** DEFERRED / SUPPLEMENTAL CONST						
4			9,008,000	1,169,000	600,000	394,000	6,845,000
5	** DEFERRED AND BYPASSED LANDS						
6	*** DEFERRED/BYPASSED LAND-PHASE 1						
7			156,963,000	1,599,000			155,364,000
8	*** DEFERRED/BYPASSED LAND-PHASE 2						
9			40,328,000				40,328,000
10	** DEFERRED AND BYPASSED LANDS		197,291,000	1,599,000			195,692,000
11	** EAST HIGH IRRIGATION SYSTEM						
12	*** EAST HIGH PHASE 1						
13			789,981,000	8,141,000	300,000		781,540,000
14	*** EAST HIGH PHASE 2						
15			1,208,985,000				1,208,985,000
16	** EAST HIGH IRRIGATION SYSTEM		1,998,966,000	8,141,000	300,000		1,990,525,000
17	** EAST LOW EXTENSION						
18	*** EAST LOW EXTENSION-FIRST PHASE						
19			165,006,000	611,000			164,395,000
20	*** EAST LOW EXTENSION 2ND PHASE						
21			216,340,000				216,340,000
22	** EAST LOW EXTENSION		381,346,000	611,000			380,735,000
23	** SERV FACILITIES DEP AND SAL						
24			1,344,000-	140,000	161,954		1,645,954-
25	* CONSTRUCTION PROGRAM		3,561,827,000	929,515,000	4,113,954	3,475,000	2,624,723,046
26	* OTHER PROJECT COST						
27			22,942,000	13,263,000	455,000	425,000	8,799,000
28	TOTAL PROGRAM COST		3,584,769,000	942,778,000	4,568,954	3,900,000	2,633,522,046
29	OTHER CONSOL. EXPEND & CREDIT		6,351,000-	5,966,644-			384,356-
30	TOTAL EXPENDITURES		3,578,418,000	936,811,356	4,568,954	3,900,000	2,633,137,690

COLUMBIA BASIN, IRRIG FACILS
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1 NONFEDERAL NONCASH CONTRIBUTION		15,362,000-	15,362,000-			
2 TOTAL FEDERAL EXPENDITURES		3,563,056,000	921,449,356	4,568,954	3,900,000	2,633,137,690
3 TOTAL RECLAMATION EXPENDITURES		3,563,056,000	921,449,356	4,568,954	3,900,000	2,633,137,690
4 UNDELIVERED ORDERS			146,954	146,954-		
5 TOTAL RECLAMATION OBLIGATIONS		3,563,056,000	921,596,310	4,422,000	3,900,000	2,633,137,690
6 TOTAL FUNDED OBLIGATIONS		3,563,056,000	921,596,310	4,422,000	3,900,000	2,633,137,690
7 METHOD OF FINANCING						
8 APPROPRIATION AVAILABLE & REQD				4,422,000	3,900,000	2,633,137,690

PROJECT DATA SHEET

REGION: Great Plains

PROJECT AND STATE: PICK-SLOAN MISSOURI BASIN PROGRAM
BUFFALO BILL DAM MODIFICATION, WYOMING

AUTHORIZATION:
Public Law 97-293, October 12, 1982.
H.R. 2567 is pending before Congress

LAND CERTIFICATION: None required

DEFINITE PLAN REPORT: Approved October 14, 1982; supplemental was completed on May 25, 1984

Completion Date	% Complete	Date
1993 1/	60	1/31/90

BENEFIT COST RATIOS

Based on Direct Benefits	Based on Total Benefits	Date
1.3 2/	1.3 2/	10/01/90

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 17/	$80,150,000
Net Property and Other Transfers:Dept. of Eng. 3/	1,760,000
Federal Participation 4/	2,410,316
Non-Federal Participation 5/	53,700,000
Adjustment 6/	8,916,684
Total to be Allocated	$146,937,000

Allotments to September 30, 1989	$47,095,747
Allotments for FY 1990	14,204,000
Allotments to Date	61,299,747
Allotments Required for FY 1991	11,930,000
Balance to Complete After FY 1991	$ 6,920,253

ALLOCATIONS 7/	
Irrigation	$
Power	64,662,000
M&I Water	35,176,000
Recreation	6,356,000
F&WL	701,000
Flood Control	
Environmental 8/	36,629,000
Highway Impr. 9/	2,793,000
Other 10/	620,000
Total	$146,937,000

REPAYMENT	
Amount Repaid of Irrigators	$
Amount Repaid by Power 11/	41,193,000
Amount Repaid by M&I Water 12/	22,378,000
State of Wyo.(Cash Adv.) 13/	52,000,000
Visitor Center (Cash Adv.) 14/	700,000
Recreation (WY Cash Adv.) 15/	1,000,000
Nonreimbursable Federal 16/	29,666,000
Total	$146,937,000

AMOUNTS PER ACRE

Irrig. Invest. per Acre	
Repayment of Investment per Acre:	
By Irrigators	
By Power Revenues	

Payment Capacity per acre	
Annual Charges:	
O&M	
Construction	
Total	

STATUS OF REPAYMENT CONTRACT: Contract with State of Wyoming for financial participation and repayment of cost was executed on March 29, 1985. On March 2, 1982, the Wyoming Legislature appropriated up to $47 million to participate in financing Buffalo Bill Dam Modifications. On June 8, 1989, the Wyoming Legislature appropriated an additional $5 million for additional financial participation in the project.

STATUS OF NEPA COMPLIANCE: Projectwide final Environmental Impact Statement was filed with Environmental Protection Agency on November 9, 1981. Projectwide Finding of No Significant Impact (FONSI UM84-1) was dated March 14, 1984.

DESCRIPTION: The project is located at the confluence of the North and South Forks of the Shoshone River in northwest Wyoming in Park County. Buffalo Bill Dam will be raised 25 feet to enlarge the reservoir and increase conservation storage by 271,300 acre-feet with a firm yield of 74,000 acre-feet provided at the mouth of the Shoshone River for the State of Wyoming to market for beneficial uses including irrigation and municipal and industrial water supplies. The spillway will be enlarged and gated. A new 18-megawatt powerplant will be constructed about 4,350 feet downstream from the dam and will use the existing Shoshone Canyon conduit as a penstock. A 4.5 megawatt plant will be installed in the energy dissipator at the

PROJECT DATA SHEET - 2
PICK-SLOAN MISSOURI BASIN PROGRAM
BUFFALO BILL DAM MODIFICATION

DESCRIPTION (continued): end of the conduit. a/ A new 3-megawatt unit and a museum will be installed in the existing Shoshone Powerplant structure. This structure contains the original 5.6-megawatt Shoshone Powerplant which was shut down in 1980. The projected annual energy production is 91,600,000 b/ kilowatt-hours from the combined 25.5 installed megawatts. Dikes will be constructed in the North and South Fork arms of the reservoir to retain water over potential dust-producing areas, and a protective dike will be built in the Diamond Creek area to preserve existing development and use.

OTHER INFORMATION: Funds to initiate advance planning were appropriated in FY 1983. Senate Report No. 98-502, supporting the FY 1985 Energy and Water Development appropriation, states "The Bureau of Reclamation may use available construction funds for preconstruction planning work on the Buffalo Bill Dam Modification Project." An amount of $3.3 million was then made available for this preconstruction work. Public Law 99-88, a FY 1985 supplemental appropriations bill, includes authorization to begin construction in FY 1985 on this project.

Footnotes:

a/ The Energy Dissipator Powerplant was added as a result of changes resulting from relocating the Shoshone Powerplant downstream. The powerplant was moved to accommodate difficult site situations and problems associated with drawing the reservoir low enough to construct a large diameter penstock through the dam. This increase in generating capability is supported by the State of Wyoming as it increases the project benefits to both the Federal Government and the State. This is in the Buffalo Bill legislation (H.R. 2567) introduced in Congress on June 6, 1989.

b/ Increase due to addition of 4.5 megawatt energy dissipator powerplant.

1/ Completion date has been extended one year from FY 1992 due to addition of the dissipator powerplant at Spirit Mountain and additional recreation facilities supported and cost-shared by the State of Wyoming.

2/ Benefit cost ratio decreased from 1.5 in FY 1990 Budget Justifications to 1.3 in FY 1991 because estimated costs increased due to indexing and new additions, and benefits decrease because FERC power values decreased. The benefit cost ratio is based on the authorized interest rate of 7-5/8 percent and October 1990 price levels. The benefit cost ratio includes interest during construction on both Federal and non-Federal contributions.

3/ Cost of transmission and switchyard facilities to be funded by Department of Energy.

4/ Includes preauthorization investigation costs of $524,057, advance planning costs of $1,595,086, total credits and other expenditures of $291,173.

PROJECT DATA SHEET - 3
PICK-SLOAN MISSOURI BASIN PROGRAM
BUFFALO BILL DAM MODIFICATION

Footnotes: (continued)

5/ Under Enrolled Act No. 11, House of Representatives, Forty-Sixth Legislature of the State of Wyoming 1982 Session, there is appropriated from the Wyoming Water Development Account to the Department of Economic Planning and Development the sum of $47,000,000, or as much thereof as may be necessary to pay the State's share of costs under the agreement to be negotiated with the Bureau of Reclamation for State participation in Buffalo Bill Dam Modifications for the various functions (power, M&I, Environmental quality, and highway improvements). The distribution of these monies is detailed in the agreement (5-07-609-WR175) between the State of Wyoming and the United States of America. On May 4, 1989, the Bureau entered into a 50/50 cost-sharing agreement with Park County, Wyoming, for design, construction, operation, maintenance, and replacement of the proposed Visitor Center with an estimated non-Federal participation of $700,000. On June 8, 1989, by Chapter 268, Section 4 of the Omnibus Water Bill, the Wyoming Legislature increased its participation from $47,000,000 to $52,000,000. The State will cost-share recreational development at the Reservoir. Its share of the $2,000,000 recreational development will be $1,000,000 and is not related to development of the visitors center.

6/ Represents reimbursable interest during construction of $5,855,000 for power at 11.010 percent, $3,107,000 for municipal and industrial water at 11.070 percent on Federal obligation only, and $-45,316 rounding adjustment.

7/ The methodology of cost allocation has not been modified. An explanation of changes in allocations between FY 1990 and FY 1991 is as follows:

Allocation	FY 1990 estimate	FY 1991 estimate
Power.	$ 59,610,000	$ 64,662,000
Municipal, Rural, and Industrial Water	35,704,000	35,176,000
Recreation	3,658,000	6,356,000
Fish and Wildlife.	692,000	701,000
Environmental Quality.	36,376,000	36,629,000
Highway Improvement.	2,793,000	2,793,000
Other.	620,000	620,000
Total	$139,453,000	$146,937,000

Explanation	Amount of Change
Changes in Cost Estimates due to Cost Indexing	$+ 937,000
New Spirit Mountain Power Plant.	+3,000,000
New Recreation Facilities.	+2,000,000
Increased Interest During Construction	+1,547,000
Total	$ 7,484,000

Footnotes: (continued)

The increase of $5,052,000 in the allocation to power is a result of the addition of the Spirit Mountain powerplant for an estimated cost of $3,000,000 for a turbine and generator to be placed in the energy dissipation structure that serves the new Buffalo Bill powerplant and the unpressurized section of the existing Shoshone Canyon conduit. This plant will capture falling water energy otherwise lost if the flows in the downstream conduit were simply returned to atmospheric pressure by means of valves and baffles. The new plant results in an increase of $1,547,000 in reimbursable interest during construction allocated to power. The remainder of $505,000 is a result of reallocation of joint costs due to changes in remaining justifiable expenditure associated with the new power generation capability.

The decrease of $528,000 in the allocation to municipal, rural, and industrial water results from the fact that this allocation consists of joint costs only. Due to the increased power and recreational investments and benefits, more joint costs were allocated to these functions, decreasing the allocation to MR&I.

The increase of $2,698,000 in the allocation to recreation is due to the State of Wyoming developing a plan for recreational development at Buffalo Bill State Park surrounding the Reservoir with an estimated cost of $2,000,000, and the reallocation of joint costs due to changes in remaining justifiable expenditure associated with new recreational development ($698,000).

The total increase in allocations are due to changes in cost estimates due to cost indexing, addition of the Spirit Mountain powerplant, and new recreational facilities and increased interest during construction. These changes from the original plan also lead to a reallocation of joint costs because of changes in remaining justifiable expenditure associated with the new power generation capability and recreational development. The major effects on joint cost allocations are: MR&I ($-528,000); Power ($+505,000), and Recreation ($+698,000).

8/ The $36,629,000 is the incremental cost of the Environmental Quality plan over and above the National Economic Development plan. Section 103 of the authorizing act states ". . . costs allocated to environmental quality shall be nonreimbursable and nonreturnable under Federal Reclamation law." The State of Wyoming is sharing in these costs in the amount of $14,618,000. The incremental costs increased due to recalculation of the allocations consistent with approved accounting procedures and project documents and agreements.

9/ This is the portion of total construction costs for highways which exceeds replacement in kind and is nonreimbursable (Public Law 87-874 as amended by Public Law 93-251). The State of Wyoming is sharing in these costs in the amount of $1,115,000.

10/ Includes $524,057 for preauthorization investigation costs and $95,943 for archeological and historical preservation, Public Law 93-291.

PROJECT DATA SHEET - 5
PICK-SLOAN MISSOURI BASIN PROGRAM
BUFFALO BILL DAM MODIFICATION

Footnotes: (continued)

11/ The amount to be repaid by power is currently identified for repayment from net power revenues generated by the Pick-Sloan Missouri Basin Program power rate. Of the $52,000,000 advanced by the State of Wyoming, $23,469,000 will be repaid from Pick-Sloan Missouri Basin power revenues through the Western Area Power Administration over a 35-year period at 11.375 percent interest (actual power repayment rate for FY 1986 at the beginning of construction). (Interest rate is determined by the date construction began.)

12/ The contract with the State of Wyoming for financial participation and repayment of costs includes marketing and repayment of the amount to be repaid by MR&I Water.

13/ Includes $23,469,000 for power, $12,798,000 for MR&I, $14,618,000 for Environmental Quality, and $1,115,000 for Highway Improvement. No reimbursable interest during construction is shown for the State share.

14/ On May 4, 1989, the Bureau entered into a 50/50 cost-sharing agreement with Park County, Wyoming, for design, construction, operation, maintenance, and replacement of the visitors center with an estimated non-Federal participation of $700,000.

15/ Represents $1,000,000 cash advance from the Wyoming Recreation Commission for cost-sharing recreation development at Buffalo Bill State Park.

16/ Includes Federal nonreimbursable cost of $95,943 for cultural resources activities, $22,011,000 for environmental quality, $701,000 for fish and wildlife, $4,656,000 for recreation, $1,678,000 for highway improvement, and $524,057 for preauthorization investigations.

17/ Appropriations authorized are $115,854,000 (October 1990). This authorization shall be reduced under the provisions of Section 107 of Public Law 97-293, October 12, 1982, by the amount of $47,000,000 contributed to the project by the State of Wyoming; therefore, the federal appropriation authorized is $68,854,000. The comparable federal obligation, after subtracting contributed funds ($47 million and an additional $5,000,000 increase voted on this fiscal year from the State, an estimated $700,000 for Visitor Center cost sharing, and $1,000,000 in Recreation cost sharing) from the construction cost, is $80,150,000 which exceeds the appropriation ceiling by more than the amount of contingencies included in the obligation. Appropriate congressional committees have been advised of the appropriation ceiling status of this project. Legislation to provide additional appropriation ceiling has been submitted to Congress. Current commitments will be held within the existing ceiling.

PICK-SLOAN MISSOURI BASIN PROGRAM
BUFFALO BILL DAM MODIFICATION, WYOMING
PHYSICAL DATA ON STRUCTURES - 6

COMPLETED WORK:

Buffalo Bill Dam

Dam:
Type - Concrete arch structure
Structural Height - 325 feet
Crest Length - 200 feet

Spillway:
Type - Uncontrolled concrete side channel weir upstream from left abutment and unlined tunnel through abutment to river
Design Discharge - 18,000 cubic feet per second

Reservoir capacity:
Total Storage
423,970
acre-feet

Shoshone Powerplant
Generating Units - One 4,000-kilowatt and two 800-kilowatt (shut down in 1979)
Generating Head - 143 feet

Switchyard
Capacity - 22,154 kilovolt-ampere

CONSTRUCTION PROGRAM:

Buffalo Bill Dam and Powerplant

Dam:
Type - Concrete arch structure
Structural Height - 350 feet
Crest Length - 259 feet

Spillway:
Type - Gated concrete side channel
Design Discharge - 66,850 cubic feet per second

Reservoir capacity:
Total Storage
695,400
acre-feet

Dust Abatement Dikes:
South Fork - 1.8 miles in length
North Fork - 1.8 miles in length

Protective Dike:
Diamond Creek - 1.5 miles in length

Shoshone Powerplant:
Generating Unit - One 3,000-kilowatt
Generating Head - 215 Feet

Capacity:
191 Cubic Feet per Second

Buffalo Bill Powerplant:
Generating Units - Three 6,000-kilowatt
Generating Head - 265 feet

Capacity:
930 Cubic Feet per Second

PICK-SLOAN MISSOURI BASIN PROGRAM
BUFFALO BILL DAM MODIFICATION, WYOMING
PHYSICAL DATA ON STRUCTURES - 7

CONSTRUCTION PROGRAM: (continued)

Spirit Mountain Energy Dissipater Powerplant 1/
Generating Units - One 4,500-kilowatt
Generating Head - 110 feet

Capacity:
560 Cubic Feet per Second

Visitor Center:
Location to be determined in consultation with cost-sharing partner(s).

Additional Recreation Facilities: (To be determined in consultation with Wyoming Recreation Commission as a cost-sharing partner.)

Land and Rights
Quantity - 1,330 acres 2/
Actual Cost - $5,315,799
Cost per Acre - $3,997
Acquisition - 100 percent complete as of September 30, 1988.

1/ The Energy Dissipator Powerplant was added as a result of changes resulting from relocating the Shoshone Powerplant downstream. The powerplant was moved to accommodate difficult size situations and problems associated with drawing the reservoir low enough to construct a large diameter penstock through the dam. This increase in generating capability is supported by the State of Wyoming as it increases the project benefits to both the Federal Government and the State. This is in the Buffalo Bill legislation (H.R. 2567) introduced in Congress on June 6, 1989.

2/ Changed from 1,145 acres shown in the FY 1990 Budget Justifications, which were in error.

PICK-SLOAN MISSOURI BASIN PROGRAM
BUFFALO BILL DAM MODIFICATION, WYOMING
PHYSICAL DATA ON STRUCTURES - 8

Relocation:

Total Estimated Cost - $10,301,000 2/

Percent complete - 6.3 percent of relocation work was accomplished as of September 30, 1989.

Items:	Length	Total cost	Cost to September 30, 1989
U.S. Highways No. 14, 16, and 20	3.4 miles	$ 6,500,000	571,005
County Road (including bridge)	500 feet	1,170,000	32,439
Campground and Recreation Facility	---	4,401,000	159,967
TOTAL		$12,071,000	763,411

2/ Increased from $7,682,000 as shown in the FY 1990 Budget Justifications. This increase is due to addition of campground improvements and increase in relocation of highways due to changes occurring after initial estimates were made.

Appropriation Title: Construction Program
Construction and Rehabilitation

PICK-SLOAN MISSOURI BASIN PROGRAM
BUFFALO BILL DAM MODIFICATION, WYOMING - 9

FISCAL YEAR 1991

Work Proposed	Program
Buffalo Bill Dam Modification. - Construction of dam modification, highway relocation, Cody Canal repair, and access road improvement will complete. Contracts will be awarded and completed for clearing reservoir and the visitor center.	$ 9,449,000
Dikes. - Contract will complete on Diamond Creek Dike and Pumping Plant. Contract will be awarded and completed on South Fork Pumping Plant.	4,535,000
Buffalo Bill Powerplants. - Contract will be awarded for the energy dissipator powerplant at Spirit Mountain.	4,124,000
Recreation Facilities. - Contract to relocate existing recreation facilities will complete, and contract for campground improvements will be awarded.	1,425,000
Other Project Costs. - Archeological and historical preservation activities will continue.	30,000
Non-Federal Participation. - State of Wyoming.	-7,633,000
TOTAL	$11,930,000

BUFFALO BILL DAM MODF, P-SMBP
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

	PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1	* CONSTRUCTION PROGRAM						
2	** BUFFALO BILL DAM MODIFICATIONS						
3	*** COMPLETED CONTRACTS						
4			816,255	816,255			
5			39,097,686	21,096,602	6,691,000	9,449,000	1,861,084
6	** DIKES						
7	*** COMPLETED CONTRACTS						
8			15,618,801	15,527,693	91,108		
9			41,495,959	26,750,369	8,080,000	4,535,000	2,130,590
10	** BUFFALO BILL POWERPLANTS						
11	*** COMPLETED CONTRACTS						
12			3,655,867	3,655,867			
13			50,245,671	30,393,760	10,351,834	4,124,000	5,376,077
14	** RECREATION FACILITIES						
15			4,401,000	159,967	1,701,000	1,425,000	1,115,033
16	** SERVICE FACIL, DEPR, SALVAGE						
17			400,000	365,346			34,654
18	* CONSTRUCTION PROGRAM		135,640,316	78,766,044	26,823,834	19,533,000	10,517,438
19	* OTHER PROJECT COSTS						
20			620,000	531,085	30,000	30,000	28,915
21	TOTAL PROGRAM COST		136,260,316	79,297,129	26,853,834	19,563,000	10,546,353
22	OTHER CONSOL. EXPEND & CREDIT		2,410,316-	2,415,605-	389		4,900
23	TOTAL EXPENDITURES		133,850,000	76,881,524	26,854,223	19,563,000	10,551,253
24	NONFEDERAL CASH CONTRIBUTIONS		53,700,000-	31,431,000-	11,005,000-	7,633,000-	3,631,000-
25	TOTAL FEDERAL EXPENDITURES		80,150,000	45,450,524	15,849,223	11,930,000	6,920,253
26	TOTAL RECLAMATION EXPENDITURES		80,150,000	45,450,524	15,849,223	11,930,000	6,920,253

BUFFALO BILL DAM MODF, P-SMBP
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

	PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1	UNDELIVERED ORDERS			1,099,389	1,099,389-		
2	TOTAL RECLAMATION OBLIGATIONS		80,150,000	46,549,913	14,749,834	11,930,000	6,920,253
3	TOTAL FUNDED OBLIGATIONS		80,150,000	46,549,913	14,749,834	11,930,000	6,920,253
4	METHOD OF FINANCING						
5	APPLICATION OF PRIOR YEAR FUND				545,834		
6	APPROPRIATION AVAILABLE & REQD				14,204,000	11,930,000	6,920,253
7	NONFEDERAL PARTICIPATION				11,005,000	7,633,000	3,631,000

Appropriation Title: Construction Program

DRAINAGE AND MINOR CONSTRUCTION PROGRAM

Summarized Financial Data:

Fiscal Year 1990:		
Appropriation (Reflects P. L. 99-177 reduction of - $609,000)	$32,118,000	
Application of Prior Year Funds	3,824,380	
Non-Federal and Other Federal Participation - Cash	1,887,000	
Total Obligations, FY 1990		$37,829,380
Fiscal Year 1991:		
Estimate of Appropriation	$25,240,000	
Non-Federal and Other Federal Participation - Cash	1,910,000	
Total Obligations, FY 1991		$27,150,000

Description: The drainage and minor construction program consists mostly of minor completion work on projects for which major construction is completed. Activities in this category include drainage work, minor repair, modification work, miscellaneous finishing activities, preconstruction on temporarily deferred facilities, and investigations for settlement of claims. A program of investigation and construction of recreation facilities at existing reservoirs under Public Law 89-72 is included and provision is made for activities to identify and preserve important cultural resources as authorized by Public Law 96-515.

Fiscal Year 1991

Work Proposed

The fiscal year 1991 program involves activity on 18 projects, which includes 4 units of the Pick-Sloan Missouri Basin Program, and cultural resources activities. One project, completion work on the Yakima Fish Passage and Protective Facilities, has been added to this category, and the Wetlands Development Program has also been added to the D&MC activity. In addition, recreation facilities at existing reservoirs is continuing in this category after a lapse of funding. Activities will be completed on one project during fiscal year 1991.

Appropriation Title: Construction Program
Drainage and Minor Construction - 2

Fiscal Year 1991

Work Proposed	Program
PROJECTS INCLUDED BEFORE 1991	
All-American Canal Project, California. - Data collection, design, and specification preparation will continue on the All-American and Coachella Canals.	$ 1,500,000 1/
Boise Project, Idaho. - Construction of minimum health and safety facilities at Cascade and Black Canyon Reservoirs will continue.	1,980,000
Brantley Dam Project, New Mexico. - Funds provide for award of contracts for repair of minor construction deficiencies.	500,000
Chief Joseph Dam Project, Oroville-Tonasket Unit, Washington. - Minor work associated with modification of the Cordell, Crater Lakes, Ellisford, and Tonasket pipe distribution systems and development of wildlife mitigation areas will be completed.	739,000
Colorado River Front Work and Levee System, Arizona-California-Nevada. - A contract for riprap protection of Reach 3 of the Middle Mohave Levee will be awarded. River damage repair work for bankline repair in the Palo Verde Division will be completed. Work on the Needles North Levee and bankline stabilization, Mohave Division, will be completed. A contract for installation of Survey/River mile markers will be awarded. A contract also will be awarded for channel modification in the Parker Division. Other project costs include pumps, motors, and controls for drainage wells in the Yuma, Arizona, area.	6,300,000
Cultural Resources Activities, Idaho-Montana-Nebraska-North Dakota-South Dakota-Oregon-Washington-Wyoming. - Archeological investigations at existing projects will continue.	75,000

Appropriation Title: Construction Program
Drainage and Minor Construction - 3

Fryingpan-Arkansas Project, Colorado. - Rehabilitation of the Bessemer Ditch at Pueblo Dam and Reservoir will be completed. Contracts for uprating the North Side Collection system and the static start equipment at Mt. Elbert Pumped-Storage Powerplant will be awarded.	1,580,000	2/
Gila Project. - The Federal funding obligation of $6 million toward the construction of Gila River channel enhancement features will be completed. Wellton-Mohawk Irrigation and Drainage District may then continue construction with district funds.	368,000	
Klamath Project, California-Oregon. A contract for Area K road surfacing, Klamath Straits Unit, will be awarded and completed. Contracts for rehabilitation of sumps 2 and 3, Tulelake Division, and the water measurement devices will be awarded. Preconstruction activities on other features will continue.	1,186,000	
Leadville Mine Drainage Tunnel, Colorado. - Construction of the treatment plant and the pump and monitoring operations will continue.	3,360,000	
McGee Creek Project, Oklahoma. - Minerals acquisition will be completed.	500,000	
Minidoka Project, Idaho. - Construction of Phase II minimum health and safety facilities at Walcott Park will be initiated.	702,000	
Newlands Project, Nevada. - Monitoring and compliance of Operating Criteria and Procedures will continue. A study will be initiated to analyze drainage problems on the Newlands Project.	1,250,000	3/
Pick-Sloan Missouri Basin Program:		
East Bench Unit, Montana. - Installation of drains will continue.	50,000	
Farwell Unit, Nebraska. - Drainage work will continue.	460,000	

Appropriation Title: Construction Program
Drainage and Minor Construction - 4

Oahe Unit, South Dakota. - Maintenance will continue on Oahe Pumping Plant and Reaches 1A and 1B of Pierre Canal, and site security and land management will be accomplished on existing facilities and Blunt Reservoir lands.	65,000
Owl Creek Unit, Wyoming. - Monitoring of Anchor Reservoir will continue.	15,000
Washoe Project, California-Nevada. - Studies will continue on Stillwater Wildlife Area Improvement Facilities, Pyramid Lake Fishway, Truckee River Fishery Improvements, cooperation with local entities on the Watasheamu Division alternative, and the Truckee River cutthroat trout.	305,000

PROJECTS INCLUDED DURING 1991

Recreation Facilities at Existing Reservoirs, Various. - Recreation facilities at existing reservoirs is a matching fund program authorized under Public law 89-72, "Federal Water Project Recreation Act" of 1965. The FY 1991 funds will be used to provide handicap accessibility to restroom facilities, picnic shelters, playfields, and boatdocks at the following reservoirs in Wyoming: Boysen State Park, Glendo State Park, Keyhole State Park, and Guernsey State Park. Funds for Canyon Ferry, Montana, will be used to provide additional minimum basic recreation facilities, including restrooms, camping and picnic facilities.	315,000
Wetlands Development, Various. - Funds will be used to complete an inventory of wetlands on 8.5 million acres of Reclamation land; work with other Interior agencies to develop a detailed appraisal of the functions and values of the wetlands on Department lands; design criteria and strategies to create and restore wetland ecosystems on a watershed basis to provide flood protection and conveyance, control sediment, supply surface and ground water, and protect water quality in addition to the obvious fish and wildlife habitat benefits; identify, plan, and design wetland construction projects based on the above strategies; initiate data collection on soils, hydrology, vegetation, etc., at the demonstration sites and initiate construction and research contracts when necessary.	2,000,000

Appropriation Title: Construction Program
Drainage and Minor Construction - 5

Yakima Fish Passage and Protective Facilities, Washington. - Designs and specifications will begin for a fish ladder and screen structure at Tieton Diversion Dam. Contracts will be awarded for construction of project office additions and a fish screen repair facility.	3,900,000
TOTAL PROGRAM	$27,150,000
Federal Obligation (Reclamation)	25,240,000
Non-Federal Participation - Cash	1,610,000
Other Federal Participation	300,000

1/ Includes $1,500,000 in non-Federal cash contributions.
2/ Includes $110,000 in non-Federal cash contributions.
3/ Includes $300,000 of other Federal participation.

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DRAINAGE AND MINOR CONSTRUCT
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

	PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1	PROJECTS INCLUDED BEFORE 1991						
2	ALL-AMERICAN CANAL PROJECT		3,152,000	2,600,000	552,000		
3	ARBUCKLE PROJECT		100,000	50,000	25,000		25,000
4	BOISE PROJECT		36,287,000	29,459,264	359,000	1,980,000	4,488,736
5	BRANTLEY PROJECT		141,432,605	135,907,225	5,025,380	500,000	
6	CHIEF JOSEPH,OROVILLE-TONASKET		89,086,000	82,537,121	2,567,000	739,000	3,242,879
7	COLO RIV FRONT WORK/LEVEE SYST		118,403,000	56,561,579	6,591,000	8,300,000	46,950,421
8	COLORADO-BIG THOMPSON PROJECT		2,220,352	2,070,352	150,000		
9	CULTURAL RESOURCES ACTIVITIES GP		1,560,000	1,220,582	44,000	50,000	245,418
10	CULTURAL RESOURCES ACTIVITIES PN		975,000		148,000	25,000	802,000
11	EAST BENCH UNIT, P-SMBP		24,230,000	23,435,478	44,000	50,000	700,522
12	FARWELL UNIT, P-SMBP		43,036,000	41,458,827	409,000	460,000	708,173
13	FRYINGPAN-ARKANSAS PROJECT		508,186,436	500,796,436	5,350,000	1,470,000	570,000
14	GILA PROJECT		78,115,000	76,498,136	618,000	368,000	630,864
15	GLENDO UNIT, P-SMBP		2,636,862	1,453,862	1,183,000		
16	KLAMATH PROJECT		54,100,000	43,395,018	1,347,000	1,186,000	8,171,982
17	LEADVILLE MINE DRAINAGE TUNNEL		16,096,000	4,818,977	3,786,000	3,360,000	4,131,023
18	LOWER COLORADO WTR SUPPLY PROJ		124,455	455	124,000		
19	MC GEE CREEK PROJECT		119,484,492	116,443,492	2,451,000	500,000	90,000
20	MINIDOKA PROJECT		4,057,000	329,945	640,000	702,000	2,385,055
21	NEWLANDS PROJECT		32,913,000	6,869,963	789,000	950,000	24,304,037
22	NUECES RIVER PROJECT		105,629,426	105,129,426	500,000		
23	OAHE UNIT, P-SMBP		490,000,000	42,240,425	58,000	65,000	447,636,575
24	OWL CREEK UNIT, P-SMBP		7,006,000	6,757,762	15,000	15,000	218,238

DRAINAGE AND MINOR CONSTRUCT
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1 PALMETTO BEND PROJECT		74,656,972	74,656,972	1,000		
2 VELARDE COMMUNITY DITCH PROJ		22,641,000	9,423,727	1,762,000		11,455,273
3 WASHOE PROJECT		362,117,000	42,677,486	399,000	305,000	318,735,514
4 WEBER BASIN PROJECT		101,249,130	100,244,130	1,005,000		
5 SUBTOTAL		2,439,494,730	1,509,035,640	35,942,380	19,025,000	875,491,710
6 PROJECTS INCLUDED DURING 1991						
7 REC FACILS AT EXISTING RESRVRS		315,000			315,000	
8 WETLANDS DEVELOPMENT		20,000,000			2,000,000	18,000,000
9 YAKIMA FISH PASG/PRTCV FACILS		43,006,000	36,817,297	939,000	3,900,000	1,349,703
10 SUBTOTAL		63,321,000	36,817,297	939,000	6,215,000	19,349,703
11 TOTAL OBLIGATIONS		2,502,815,730	1,545,852,937	36,881,380	25,240,000	894,841,413
12 METHOD OF FINANCING						
13 APPLICATION OF PRIOR YEAR FUNDS				4,369,380		
14 APPROPRIATION AVAILABLE & REQD				32,512,000	25,240,000	894,841,413
15 OTHER FEDERAL PARTICIPATION				300,000	300,000	699,243
16 NON-FEDERAL PARTICIPATION				1,723,000	1,610,000	175,329,000

Appropriation Title: Construction Program

REHABILITATION AND BETTERMENT OF EXISTING PROJECTS

Summarized Financial Data:

Fiscal Year 1990:		
Appropriation (Reflects P. L. 99-177 reduction of - $68,000)	$ 3,858,000	
Application of Prior Year Funds	391,079	
Total Obligations, FY 1990		$ 4,249,079
Fiscal Year 1991:		
Estimate of Appropriations	$ 6,170,000	
Total Obligations, FY 1991		$ 6,170,000

Description: On existing older projects, some of the structures have exceeded their useful life; and, in the long run, replacement is more economical than continuing extensive repairs. The deteriorated facilities often result in inefficient use or loss of irrigation water. Needed repairs in most instances are beyond the ability of the water users to finance on a current year basis. In addition, there have been many changes in land use, methods of irrigation, and types of crops raised; and to place these older projects on a basis comparable to those now being constructed, the facilities need not only to be rehabilitated but also improved.

Repayment: The Act of October 7, 1949, as amended, which is the basic authorizing legislation for the rehabilitation and betterment program, requires execution of contracts for the repayment of the cost of the rehabilitation and betterment work allocable to reimbursable functions. The annual rate of payment is based on the finding of the Secretary of the Interior as to the ability of the users to pay after giving due consideration to any other outstanding repayment obligations.

Appropriation Title: Construction Program
Rehabilitation and Betterment - 2

During fiscal year 1991, rehabilitation and betterment work will be underway on 7 projects.

Fiscal Year 1991

Work Proposed	Program
PROJECTS INCLUDED BEFORE 1991	
Highland-Hanover Division, Pick-Sloan Missouri Basin Program, Wyoming. - Work will complete on rehabilitating farm turnout water measurement devices, rehabilitating portions of 5 pumping plants, converting canals and lateral ditches to buried pipe, and lining sections of larger canals with PVC lining.	$ 150,000
Hyrum Project, Utah. - Rehabilitation of the bypass will be completed. Work will continue on outlet works repair. Work will be initiated on conveyance facilities rehabilitation and pump/turbine plant repairs.	786,000
Milk River Project, Glasgow Division, Montana. - Work will continue on design development, equipment and material acquisition, and rehabilitation of project facilities will continue.	410,000
Milk River Project, Malta Division, Montana. - Work will continue on design development, equipment and materials acquisition, and rehabilition of project facilities will continue.	560,000
Ogden River Project, Utah. - Rehabilitation of Pineview Dam facilities will be initiated. Replacement of the Ogden Canyon conduit and rehabilitation of the Ogden-Brigham Canal will continue. Acquisition of operation and maintenance equipment will be initiated.	1,954,000

Appropriation Title: Construction Program
Rehabilitation and Betterment - 3

Fiscal Year 1991

Work Proposed (Continued)	Program
Upper Bluff Division, Pick-Sloan Missouri Basin Program, Wyoming. - Work will complete on replacing and rehabilitating structures, converting open canals to pipe, and lining larger canals.	110,000
Weber Basin Project, Utah. - Rehabilitation of the Gateway Canal and Stoddard Diversion Dam will continue.	2,200,000
TOTAL PROGRAM	$6,170,000
Federal Obligation (Reclamation)	6,170,000

REHABILITATION AND BETTERMENT
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1 PROJECTS INCLUDED BEFORE 1991						
2 HIGHLAND-HANOVER DIV, P-SMBP		300,000		148,000	150,000	2,000
3 HYRUM PROJECT		2,100,000	39,496	846,000	786,000	428,504
4 MILK RIVER, GLASGOW DIVISION		2,050,000		89,000	410,000	1,551,000
5 MILK RIVER, MALTA DIVISION		5,600,000		221,000	560,000	4,819,000
6 MOON LAKE PROJECT		8,239	3,618	4,621		
7 OGDEN RIVER PROJECT		11,869,000		1,611,000	1,954,000	8,304,000
8 STRAWBERRY VALLEY PROJECT		7,589,055	7,535,758	53,297		
9 UNCOMPAHGRE PROJECT		5,348,796	5,125,635	223,161		
10 UPPER BLUFF DIVISION, P-SMBP		220,000		108,000	110,000	2,000
11 WEBER BASIN PROJECT		9,900,000		945,000	2,200,000	6,755,000
12 SUBTOTAL		44,985,090	12,704,507	4,249,079	6,170,000	21,861,504
13 TOTAL OBLIGATIONS		44,985,090	12,704,507	4,249,079	6,170,000	21,861,504
14 METHOD OF FINANCING						
15 APPLICATION OF PRIOR YEAR FUNDS				391,079		
16 APPROPRIATION AVAILABLE & REQD				3,858,000	6,170,000	21,861,504

SAFETY OF DAMS PROGRAM

Summarized Financial Data:

Fiscal Year 1990:		
Appropriation (Reflects P. L. 99-177 reduction of - $411,000)	$25,659,000	
Application of Prior Year Funds	1,657,149	
Non-Federal Participation - Cash	3,516,000	
Total Obligations, FY 1990		$30,832,149
Fiscal Year 1991:		
Estimate of Appropriation	$67,348,000	
Non-Federal Participation - Cash	4,882,000	
Total Obligations, FY 1991		$72,230,000

Description: The Safety of Dams Program implements the intent of the "Reclamation Safety of Dams Act of 1978" (Public Law 95-578, as amended in 1984 by Public Law 98-404). The Act grants authority to undertake necessary actions to provide for the safety of existing dams and related facilities under the jurisdiction of the Bureau of Reclamation. The 1984 amendments to the Act raised the appropriation ceiling from the original $100 million to $750 million for authorized work. The total estimated cost of work currently proposed or completed is $745,861,954, while the current obligations through FY 1991 total $316,229,167. The Bureau has control over some 240 reservoirs impounded by more than 310 dams and dikes. There are 275 Bureau dams included in the Safety Evaluation of Existing Dams program, which includes 7 privately owned dams that have become a part of Bureau projects by previous legislation. It is important that these structures be maintained and operated to present the least possible hazard to life and property while fulfilling project goals.

The program for FY 1991 provides for continuing preconstruction and construction work on 9 dams. They are: Boise Project, Deer Flat Dam, Idaho; Cachuma Project, Bradbury Dam, and Central Valley Project, O'Neill Dam, California; Hyrum Project, Hyrum Dam, Utah; Minidoka Project, Jackson Lake Dam, Idaho-Wyoming; Salt River Project, Bartlett Dam, Horseshoe Dam, and Stewart Mountain Dam, Arizona; and W. C. Austin Project, Altus Dam, Oklahoma. Preconstruction and construction activities for the modification of Coolidge Dam, owned and operated by BIA, will continue. Work also is continuing on the Salt River Project, Modified Roosevelt Dam, Arizona, under the Central Arizona Project.

Appropriation Title: Construction Program
Safety of Dams Program - 2

In addition, funding is provided for corrective action work to begin on several dams in FY 1991.

Modification work will be completed during FY 1991 on the Minidoka Project, Jackson Lake Dam.

The Bureau of Reclamation coordinates the Department of the Interior Dam Safety Program, which includes advising and assisting other Interior agencies in operating their dam safety programs and coordinating the Department of the Interior program with the Federal Emergency Management Agency.

In addition, the Administration is proposing that Reclamation assume the administrative and technical program accomplishment of BIA inspection, analysis, and corrective action activities; therefore, Reclamation is requesting funding for these activities commencing in FY 1991.

Funds for examination of dams and analytical activities on projects to determine the need for modification are provided through the Safety Evaluation of Existing Dams program, a part of the Operation and Maintenance Appropriation.

Appropriation Title: Construction Program
Safety of Dams Program - 3

Fiscal Year 1991

Work Proposed

PROJECTS INCLUDED BEFORE 1991	Program	
Boise Project, Deer Flat Dam, Idaho. - Construction work will continue on modifications of the dam by strengthening the embankment and foundation materials. Fish and wildlife mitigation work will continue.	$17,225,000	
Cachuma Project, Bradbury Dam, California. - Design data collection and final design will be completed for modifications to protect the dam for the new inflow design flood.	1,000,000	1/
Central Valley Project, O'Neill Dam, California. - Construction will be initiated on modifications to stabilize the embankment foundation to protect it against liquefaction during a seismic event.	4,400,000	2/
Hyrum Project, Hyrum Dam, Utah. - Construction of a warning system will continue.	1,350,000	
Minidoka Project, Jackson Lake Dam, Wyoming. - Fish and wildlife mitigation and minor work to restore the construction area will complete.	409,000	
Salt River Project, Arizona:		
Bartlett Dam. - Preconstruction activities for the dam modification will continue. Work will continue on fish, wildlife, and cultural mitigation contracts.	3,004,000	3/
Horseshoe Dam. - Preconstruction activities for the dam modification and fish, wildlife, and cultural mitigation contracts will continue.	1,004,000	4/
Stewart Mountain Dam. - Work will be completed on the contract for installation and stressing the steel cables in the dam structure. Cultural and environmental mitigation activities will continue.	4,528,000	5/

Appropriation Title: Construction Program
Safety of Dams Program - 4

Fiscal Year 1991

Work Proposed

Salt River Project, Modified Roosevelt Dam, Central Arizona Project, Plan 6, Arizona. - Preconstruction and construction activities will continue on Modified Roosevelt Dam.	(16,317,000) 6/
W. C. Austin Project, Altus Dam, Oklahoma. - Dike modification work and Phase II hydromet equipment installation will continue. Phase II of the warning system will be completed.	5,200,000
Modification Reports and Preconstruction Activity, Various. - This activity provides for corrective action studies, related premodification activities, and interim protective measures.	2,550,000
Safety of Dams Corrective Action, Various. - This activity provides for preparation of modification reports, preconstruction activities including design and preparation of contract specifications, special studies, modifications not exceeding $750,000, and corrective action work to begin on several projects. Corrective actions are proposed to be initiated on the following dams and projects: Umatilla Project, Cold Springs Dam, Oregon; Crooked River Project, A. R. Bowman Dam, Oregon; Deschutes Project, Wickiup Dam, Oregon; Emery County Project, Joes Valley Dam, Utah; Weber Basin Project, Causey Dam, Utah; Lyman Project, Meeks Cabin Dam, Utah and Wyoming; Paonia Project, Paonia Dam, Colorado; Vernal Unit, Central Utah Project, Steinaker Dam, Utah; Colorado-Big Thompson Project, Olympus Dam, Colorado.	16,725,000

Appropriation Title: Construction Program
Safety of Dams Program - 5

Fiscal Year 1991

Work Proposed

ADDITIONAL SAFETY OF DAMS WORK NOT INCLUDED UNDER SAFETY OF DAMS ACT

Department Dam Safety Program. - Work will continue the coordination and management of the Department of the Interior Dam Safety Program. Program activities include preparation of Department policy and guidelines, maintenance of data base information required by the Federal Guidelines for Dam Safety, research applicable to DOI dams, and assistance to other Department of the Interior agencies in administering their dam safety programs. Development of a dam safety training aids program in conjunction with other Department of the Interior, Federal, and State agencies will continue.	650,000
BIA Dam Safety Program. - The administrative and technical program accomplishment of the Bureau of Indian Affairs inspection, analysis, and corrective action for 60 BIA dams with high or significant hazard classifications will begin in FY 1991.	9,055,000
San Carlos Irrigation Project, Coolidge Dam. - Preconstruction activities for the dam modification will continue. The cultural mitigation contract will be completed, and a contract will be awarded to stabilize the rock slide area.	5,130,000
TOTAL PROGRAM	$72,230,000
Federal Obligation (Reclamation)	67,348,000
Non-Federal Participation - Cash	4,882,000

1/ Includes $720,000 in non-Federal cash contributions.
2/ Includes $2,420,000 in non-Federal cash contributions.
3/ Includes $454,000 in non-Federal cash contributions.
4/ Includes $154,000 in non-Federal cash contributions.
5/ Includes $1,134,000 in non-Federal cash contributions.
6/ Funding is being requested as part of the Central Arizona Project, Safety of Dams. Includes $2,115,000 in non-Federal cash contributions.

PF-40 (10-78)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	TOTAL	TOTAL TO SEPTEMBER 30, 1989	FY 1990 PROGRAM	FY 1991 ESTIMATE	BALANCE TO COMPLETE
PROJECTS PERFORMED UNDER AUTHORITY OF PUBLIC LAW 95-578 (Appropriation Ceiling $100,000,000)					
COMPLETED SOD CONSTRUCTION					
Fruitgrowers Dam Project, Colorado	$2,045,199	$2,045,199	$ -	$ -	$ -
Milk River Project, Lake Sherburne Dam, Montana . .	3,503,974	3,503,974	-	-	-
Minidoka Project, Island Park Dam, Idaho	6,305,699	6,305,699	-	-	-
North Platte Project, Guernsey Dam, Wyoming	557,108	557,108	-	-	-
Orland Project, Stony Gorge Dam, California	3,034,143	3,034,143	-	-	-
P-SMBP, Heart Butte Unit, Heart Butte Dam, N. Dakota	2,597,118	2,597,118	-	-	-
P-SMBP, Rapid Valley Unit, Pactola Dam, South Dakota	10,112,180	10,112,180	-	-	-
Rapid Valley Project, Deerfield Dam, South Dakota .	6,917,221	6,917,221	-	-	-
Sun River Project, Gibson Dam, Montana	3,316,265	3,316,265	-	-	-
Sun River Project, Willow Creek Dam, Montana	243,894	243,894	-	-	-
Subtotal - Completed SOD Construction	$38,632,801	$38,632,801	$ -	$ -	$ -
INACTIVE SOD PROJECTS					
Boise Project, Black Canyon Dam, Idaho	$360,717	$360,717	$ -	$ -	$ -
Orland Project, East Park Dam, California	58,072	58,072	-	-	-
Subtotal - Inactive SOD Projects	$418,789	$418,789	$ -	$ -	$ -

PF-40 (10-78)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM		TOTAL	TOTAL TO SEPTEMBER 30, 1989	FY 1990 PROGRAM	FY 1991 ESTIMATE	BALANCE TO COMPLETE
PROJECTS UNDER DESIGN AND/OR CONSTRUCTION						
Hyrum Project, Hyrum Dam, Utah	1/	$733,273	$733,273	$ -	$ -	$ -
Minidoka Project, Jackson Lake Dam, Idaho-Wyoming .	1/	3,977,991	3,977,991	-	-	-
Newlands Project, Lahonton Dam, Nevada		5,661,563	5,611,989	49,574		
Newton Project, Newton Dam, Utah		2,481,477	2,423,477	58,000		
Salt River Project, Stewart Mountain Dam, Arizona .	1/	445,721	445,721	-	-	-
W.C. Austin Project, Altus Dam, Oklahoma		11,365,000	1,776,298	417,000	5,200,000	3,971,702
Subtotal - Projects Under Construction		$24,665,025	$14,968,749	$524,574	$5,200,000	$3,971,702
Modification Reports and Preconstruction Activity .		27,130,552	20,542,091	1,899,461	1,000,000	3,609,000
Subtotal - Public Law 95-578		$90,847,167	$74,562,430	$2,424,035	$6,200,000	$7,580,702
PROJECTS PERFORMED UNDER AUTHORITY OF PUBLIC LAW 98-404 (Appropriation Ceiling $650,000,000) 2/						
PROJECTS UNDER DESIGN AND/OR CONSTRUCTION						
Boise Project, Deer Flat Dam, Idaho		$27,900,000	-	$2,059,000	$17,225,000	$7,816,020
Cachuma Project, Bradbury Dam, California		60,260,000	-	99,000	280,000	59,881,000
CVP, San Luis Unit, Little Panoche Dam, California .		225,000	-	222,000	-	3,000
CVP, San Luis Unit, Los Banos Dam, California . . .		675,000	-	666,000	-	9,000
CVP, San Luis Unit, O'Neill Dam, California		2,475,000	-	44,000	1,980,000	451,000
Hyrum Project, Hyrum Dam, Utah	1/	1,583,000	-	133,000	1,350,000	100,000
Lewiston Orchard Project, Soldiers Meadow Dam, Idaho		1,394,537	1,374,537	20,000	-	-
Minidoka Project, Jackson Lake Dam, Idaho-Wyoming .	1/	72,559,656	71,389,656	761,000	409,000	-

PF-40 (10-78)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM		TOTAL	TOTAL TO SEPTEMBER 30, 1989	FY 1990 PROGRAM	FY 1991 ESTIMATE	BALANCE TO COMPLETE
PROJECTS UNDER DESIGN AND/OR CONSTRUCTION - Continued						
Salt River Project, Bartlett Dam, Arizona		$68,733,000	-	$1,476,000	$2,550,000	$64,707,000
Salt River Project, Horseshoe Dam, Arizona		32,867,000	-	1,476,000	850,000	30,541,000
Salt River Project, Stewart Mountain Dam, Arizona .	1/	36,904,221	23,498,875	5,870,122	3,394,000	4,141,224
San Angelo Project, Twin Buttes Dam, Texas		26,092,789	14,789	489,000	-	25,589,000
Seedskadee Project, Fontenelle Dam, Wyoming		25,887,612	25,381,612	506,000	-	-
Washita Basin Project, Foss Dam, Oklahoma		493,000	-	493,000	-	-
Subtotal - Design and Construction		$358,049,815	$121,659,469	$15,114,122	$28,038,000	$193,238,224
Initiation of SOD Corrective Action		$145,521,000	$3,208,953	$4,011,047	$16,725,000	$121,576,000
Modification Reports and Preconstruction Activity .		26,430,701	14,296,701	3,815,000	1,470,000	6,849,000
Subtotal - Public Law 98-404	3/	$530,001,516	$139,165,123	$22,940,169	$46,233,000	$321,663,224
Central Arizona Project, Plan 6 - Arizona 4/						
Theodore Roosevelt Dam, Salt River, Arizona . . .		(84,600,000)	(18,113,869)	(15,218,000)	(16,317,000)	(34,951,131)
Non-Federal Participation - CAP		(12,705,000)	(4,477,412)	(1,535,000)	(2,115,000)	(4,577,588)
Subtotal - Central Arizona Project . . (Non-add)		(71,895,000)	(13,636,457)	(13,683,000)	(14,202,000)	(30,373,543)
ADDITIONAL SAFETY OF DAMS WORK NOT INCLUDED UNDER SAFETY OF DAMS ACT						
San Carlos Irrigation - Coolidge Dam, Arizona . . .		$49,500,000	$981,139	$1,397,000	$5,130,000	$41,991,861
Department of the Interior Dam Safety Program . . .		7,477,550	3,972,605	554,945	650,000	2,300,000
BIA - Dam Safety Program		142,655,000			9,055,000	133,600,000
TOTAL OBLIGATIONS (Reclamation)		$820,481,233	$218,681,297	$27,316,149	$67,348,000	$587,135,787

PF-40 (10-78)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	TOTAL	TOTAL TO SEPTEMBER 30, 1989	FY 1990 PROGRAM	FY 1991 ESTIMATE	BALANCE TO COMPLETE
Method of Financing:					
Appropriations Available and Required	$ -	$ -	$25,659,000	$67,348,000	$507,135,787
Application of Prior Year Funds	-	-	1,657,149	-	-
Non-Federal Participation:					
Cash 5/	-	-	3,516,000	4,882,000	303,550,545

Footnotes:

1/ Part of each of these projects is included within the appropriation ceiling of Public Law 95-578 and the remainder of the project is included under Public Law 98-404.

2/ The $650 million appropriation ceiling at October 1983 price levels. The ceiling can be indexed for fluctuations of construction costs as provided by Public Law 98-404.

3/ This figure does not include funds estimated to perform dam safety work on Roosevelt Dam. Funding for the dam safety work associated with this dam (total estimate, $71,895,000) is being requested as part of the Central Arizona Project (CAP), in Safety of Dams Division, but it will apply toward the ceiling authorized by Public Law 98-404. Thus, the total estimated costs for dams identified in the Safety of Dams Program applied towards the appropriations ceiling of Public Law 98-404 is $601,896,516.

4/ Because work on this project feature serves more than a single function, there is no feasible way to allocate costs specifically for dam safety to the various contract work items. Consequently, funding is requested as a part of the CAP Safety of Dams Division, although the costs of these features accrue against the SOD ceiling (See footnote #3).

5/ This is not included in the obligation numbers above.

Appropriation Title: Construction Program

SCIENCE AND TECHNOLOGY

Summarized Financial Data:

Fiscal Year 1990		
Appropriation (Reflects Public Law 99-177 reduction of - $166,000)	$11,405,000	
Application of Prior Year Funds	2,001,458	
Non-Federal Participation - Cash	4,177,000	
Total Obligations, FY 1990		$17,583,458
Fiscal Year 1991:		
Estimate of Appropriation	$13,303,000	
Non-Federal Participation - Cash	1,351,000	
Total Obligations, FY 1991		$14,654,000

Description: The total program is comprised of three separate activities: Global Climate Change, Groundwater Recharge Demonstration, and Water Technology and Environmental Research.

Global Climate Change will identify watersheds in the 17 Western States that might be adversely impacted by climatic change, develop water resource management strategies to deal with scenarios of potential change, and conduct research to bridge the gap of uncertainty between global circulation model simulations and hydrologic models. Specific concerns of interest to Reclamation include uncertain changes in precipitation patterns, possible coastal flooding, and temperature modification of uncertain strength and character related to the "greenhouse" effect.

The Groundwater Recharge Demonstration activity, which began in late 1985, is a two-phased endeavor which seeks to identify the potential for groundwater recharge in the West and to demonstrate recharge technologies under varying hydrogeologic conditions. Planning and site selection efforts are finalized in the Phase I report which the Secretary of the Interior submitted to the Congress in December 1987. Construction of demonstration projects was begun in FY 1989. The Groundwater Recharge program is dependent upon the active support and participation of non-Federal interests such as the States, municipalities, irrigation districts, and other local organizations, and upon the cooperative activities of the Bureau of Reclamation, the Geological Survey and the Environmental Protection Agency.

Appropriation Title: Construction Program

SCIENCE AND TECHNOLOGY - 2

The Water Technology and Environmental Research (WATER) program is directed toward problems and technology needs involved in managing water-related resources. These studies result in reduced costs, increased efficiency and reliability, and environmental protection. Research categories include environmental restoration and enhancement, water supply alternatives, new methods and materials, power systems, resource optimization, technology transfer, and planning methodology. Non-federal funding will support cooperative studies with the states of California and Arizona.

FISCAL YEAR 1991

Work Proposed

A description of the work to be achieved and a justification of the work proposed for FY 1991 appear on the following pages.

SCHEDULE OF SCIENCE AND TECHNOLOGY PROGRAM

Region	Project	Authorization
All Regions and Denver Office	Global Climate Change	Public Laws 98-473 99-190 and 100-446

Initiation	Completion	Percentage of Cost Sharing	State
FY 1991	Ongoing	0	Various

Summarized Financial Data

	Estimated Total	Total to September 30, 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 28,220,000	$ --	$ --	$ 2,400,000	$ 25,820,000
Non-Federal:	--	--	--	--	--
Other Federal:	--	--	--	--	--
TOTAL	$ 28,220,000	$ --	$ --	$ 2,400,000	$ 25,820,000

Description of Project

The purpose is to study the "greenhouse" effect of possible global climatic change on watersheds in the Western United States. This program would identify watersheds in the 17 Western States that could be adversely impacted by global climatic change, develop water resource management strategies to deal with possible change, and conduct research to bridge the gap of uncertainly between global circulation model predictions and hydrologic models.

Carbon dioxide, methane, chlorofluorocarbons, and other gases are known to be undergoing a buildup in the earth's atmosphere. The pre-Industrial Revolution concentration of CO_2 in the atmosphere probably lay in the range of 250 to 295 parts per million by volume. Today it stands at 350 ppm, and by the year 2050 it could reach 500 to 700 ppm. Issues such as "greenhouse warming" have the potential of causing wide-ranging impacts. Concerns of interest to Reclamation include uncertain changess in precipitation patterns, possible coastal flooding, and temperature modification of uncertain strength and character.

Global Climate Change (continued)

Each of these has the potential of impacting the development and management of water resource systems and irrigated agriculture.

$2.3 million of the budget request would be used to develop new knowledge of the impacts of possible global change on western water resources by collecting environmental data, creating new models, and preparing inventories of watershed sensitivity to scenarios of potential global climatic change for selected water-short river basins of the Western United States. With the appropriate techniques for hydroclimatic impact assessment, water managers can begin to bridge the gap between the very gross global circulation model simulations and the specific inputs required for operational hydrological modeling.

The balance of the budget request, $100,000, would be used for a series of studies to examine the social, environmental, and economic consequences of global change and of any actions dealing with such change, as related to Interior decisions and policies for the land and resources for which it has stewardship responsibility. This funding will assist the Department in developing methodologies to estimate these social, economic, and environmental consequences by developing both a data base and models relating such consequences to global change.

SCHEDULE OF SCIENCE AND TECHNOLOGY PROGRAM

Region All Regions and Denver Office	Project Groundwater Recharge Demonstration Program		Authorization Public Law 98-434
Initiation FY 1986	Completion FY 1994	Percentage of Cost Sharing 28	State Various

Summarized Financial Data

	Estimated Total	Estimated Total to September 30, 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 28,339,147 1/	$ 2,097,879	$ 8,917,268	$ 4,303,000	$ 12,821,000
Non-Federal:	10,477,000	314,000	4,621,000	1,491,000	4,051,000
Other Federal:	62,000	62,000	--	--	--
TOTAL	$ 38,878,147	$ 2,473,879	$13,538,268	$ 5,994,000	$ 16,872,000

Description of Project

The Groundwater Recharge Demonstration Program, as outlined in P.L. 98-434, authorizes and directs the Secretary of the Interior to carry out a two-phase program to study the potential for ground water recharge in the 17 Western States and to demonstrate artificial recharge technologies under a variety of hydrogeologic conditions. The authorization for Phase II was $20 million.

Phase II, which involves the design, construction, data gathering, and evaluation phase, was begun in FY 1989 with the initiation of 12 projects and continued in FY 1990 with the initiation of 8 additional projects. One project, originally scheduled to begin in FY 1990 will, now be initiated in 1991.

1/ Current estimated costs for Phase II construction are $27,724,000. Firm cost estimates for some projects, especially the three replacement projects recently added to the program, are not available; consequently, these cost estimates could increase. Cost increases are due primarily to increased costs of environmental monitoring. An increase in the appropriation ceiling will be necessary to meet the requirements to construct 21 projects. Such legislation has been introduced in HR 3793.

Groundwater Recharge Demonstration Program (continued)

An economic and institutional study of the benefits of ground water recharge begun in FY 1989 was completed in FY 1990. The demonstration project sites are located in areas having declining water tables; available surface water supplies; and a high probability of physical, chemical, and economic feasibility for recharge. A map following this explanation indicates the recommended sites of the Groundwater Recharge Demonstration Program.

In FY 1989 three projects (Wood River, Nebraska; Woodward, Oklahoma; and High Plains, Texas) were added to the program to replace three projects which were deleted from the program because local sponsors withdrew.

In FY 1991, a Federal funding request of $4,503,000 would be used to fund construction and operation on the 21 projects. The following is an identification of the 21 demonstrations and a distribution of the funding that assumes legislation is enacted to increase the ceiling:

State	Project	FY 1991 Federal Funds	FY 1991 Non-Federal Funds
	HIGH PLAINS STATES		
Colorado	Plains-Arikaree	$ 165,600	$ 41,400
	Frenchman	138,600	34,600
	Denver Basin	278,700	320,100
Kansas	Smoky Hill	107,500	25,600
	Equus Beds	474,800	118,700
Nebraska	York	70,700	17,700
	Wood River *	306,000	76,500
Oklahoma	Blaine Gypsum	189,300	43,300
	Woodward *	50,000	12,500
South Dakota	Huron	139,700	34,900
Texas	Hueco Bolson	89,200	38,900
	High Plains *	124,800	31,200
	OTHER WESTERN STATES		
Arizona	Rillito Creek	166,300	86,000

SCHEDULE OF SCIENCE AND TECHNOLOGY PROGRAM

Groundwater Recharge Demonstration Program (continued)

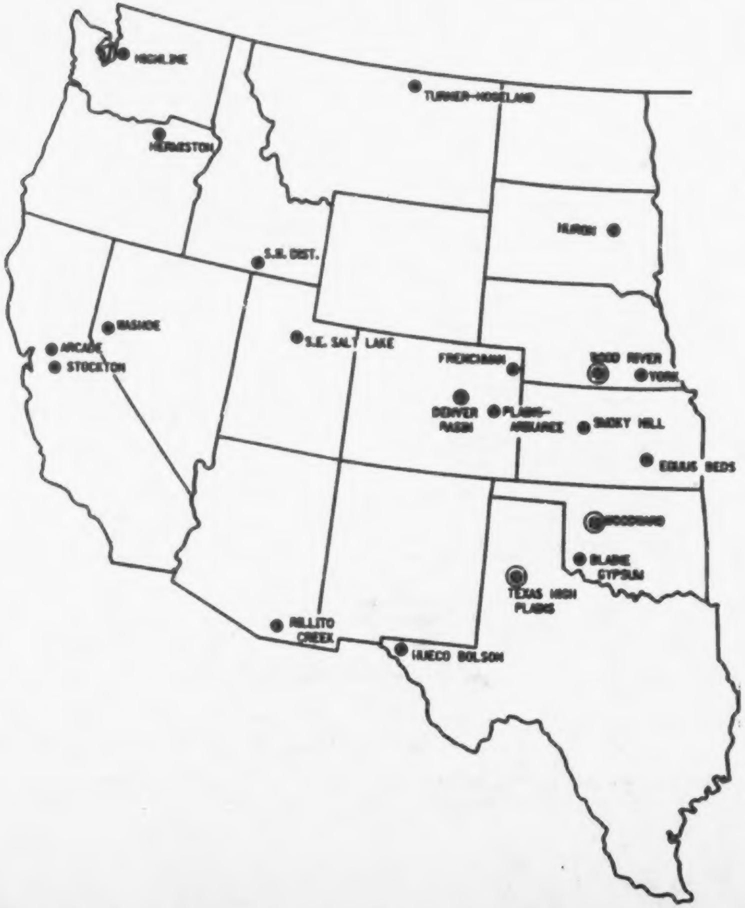
State	Project	FY 1991 Federal Funds	FY 1991 Non-Federal Funds
California	Arcade	87,400	21,800
	Stockton	262,200	65,500
Idaho	S.W. Irrig. Dist.	422,400	105,600
Nevada	Washoe	136,700	34,200
Montana	Turner-Hogeland	79,900	19,200
Oregon	Hermiston	328,500	82,100
Utah	S.E. Salt Lake County	357,900	198,800
Washington	Highline Well Field	329,600	82,400
Subtotal		$4,305,800	$1,491,000
Program Coordination		197,200	0
Total Program		$4,503,000	$1,491,000

* Replacement Project

Construction of facilities and demonstration work will be completed on each project within a 5-year period of its initiation. Cooperative agreements will be executed with project sponsors for completion of design data collection, cultural surveys, and specifications of design; installation and operation of project facilities; and right-of-way acquisition. The appropriated funds for Phase II will represent approximately 70 percent of the total funds required for the demonstration projects--the difference being funds and resources to be provided by the non-Federal sponsors who will perform the work.

HIGH PLAINS STATES GROUNDWATER DEMONSTRATION PROGRAM

LOCATION OF PHASE II RECHARGE DEMONSTRATION SITES


HIGHLINE
TURNER-HOGELAND
HERMISTON
HURON
S.W. DIST.
WASHOE
ARCADE
STOCKTON
S.E. SALT LAKE
FRENCHMAN
WOOD RIVER
YORK
DENVER BASIN
PLAINS-ARIKAREE
SMOKY HILL
EQUUS BEDS
WOODWARD
BLAINE GYPSUM
TEXAS HIGH PLAINS
RILLITO CREEK
HUECO BOLSON

◉ REPLACEMENT PROJECT

SCHEDULE OF SCIENCE AND TECHNOLOGY PROGRAM

Region All Regions and Denver Office	Project Water Technology and Environmental Research		Authorization Public Law 57-161
Initiation Ongoing	Completion Ongoing	Percentage of Cost Sharing 0	State Various

Summarized Financial Data

	Estimated Total	Estimated Total to September 30, 1989	Program FY 1990	Estimate FY 1991	Balance To Complete
Reclamation:	$ 201,896,130 1/	$ 83,530,923	$ 4,464,387	$ 6,400,000	$107,500,820
Non-Federal:	1,178,000	- 0 -	178,000	200,000	800,000
Other Federal:	--	--	--	--	--
TOTAL	$ 203,074,130	$ 83,530,923	$ 4,642,387	$ 6,600,000	$108,300,820

Description of Project

The building, maintenance, and operation of public works facilities require a continual renewing of technology to provide efficient, safe procedures for their use. The challenge to make the best use of scarce water resources, use associated public land wisely and effectively, protect the environment, and improve power operation and efficiency necessitates the development of new technologies.

The WATER program is a mission-oriented engineering and scientific research program to develop new technology in the areas of water supply, environmental protection, operations, design, and construction. Research results benefit not only Reclamation, but also water-user operated projects, other Federal and state agencies, private industry, and foreign countries. The program yields significant economic benefits. For example, approximately $150,000 invested in electric power research through this program led to discovery of an improved management program that produces additional power with an estimated value exceeding $7 million annually. Significant intangible benefits also accrue.

1/ The increase in research program costs, expected to yield substantial financial and other benefits, is for new studies identified through a carefully documented survey of problems and needs in the agency's regional and project offices.

Water Technology and Environmental Research (continued)

The WATER program has been strengthened and redirected to provide more focused support to Reclamation-wide initiatives identified in "Assessment '87" as well as support for continuing work in planning, design, construction, dam safety, and operation and maintenance. The focus has been shifted to resource management issues, technology transfer efforts, and cost-shared research activities. Major emphasis will be given to providing the engineering and technological bases for continued operation of Reclamation projects in a well-maintained, efficient, and cost-effective manner. Water supply alternatives, environmental protection, system automation, and system optimization will be some of the areas receiving increased emphasis. Where appropriate, cost-shared studies will be undertaken to leverage the funds available for research. In this process unique Reclamation capabilities will be made available to others.

New studies initiated in FY 1990 to support Reclamation's new direction and additional studies to be started in FY 1991 include reuse of waters of impaired quality (grey water); water augmentation; optimization of the power, water and environmental values of water releases from reservoirs; development of new technology for the repair of deteriorating water resource structures; enhancement and development of wetlands; improving the system operating efficiencies at Reclamation powerplants; determining responses to the water supply and demand effects of climatic change; and promotion of the transfer of Reclamation technology to the private sector. These studies are accomplished both in-house and through grants, cooperative agreements, and contracts to universities and private firms. The major research areas under which these studies are conducted are:

PROGRAM ITEM		PROGRAM FY 1990	ESTIMATE FY 1991
(1) Water Supply Alternatives	Federal	($1,000,000)	($ 700,000)
(formerly Water Supply Aug. and Conserv.)	Non-Federal	(178,000)	(200,000)

Water Supply Alternatives - is directed toward identifying more efficient techniques for managing and conserving available water supplies. These studies would focus on developing improved methods for determining irrigation water needs, better management techniques for the water and land, and lower investment costs.

SCHEDULE OF SCIENCE AND TECHNOLOGY PROGRAM

PROGRAM ITEM	PROGRAM FY 1990	ESTIMATE FY 1991
Water Technology and Environmental Research (continued)		

Additional studies are conducted to improve Reclamation's management of water on and beneath the land surface to better utilize the water and control its damaging effects. Studies investigate improved procedures for predicting and handling effects of climatic changes; floodflows; statistical and computer-oriented techniques for managing reservoir and river basin operations; and effective, safe methods of controlling aquatic weeds which restrict flows through channels and create major operational problems. Ground water studies include both management and quality of supplies.

(2) Environmental Restoration and Enhancement (formerly Water Quality and Ecology)	($ 950,000)	($2,500,000)

Environmental Restoration and Enhancement - is focused on finding better ways to protect the quality of water resources and to maintain environmental and ecological balances. Studies encompass research on control of water quality by methods such as reaeration of reservoir and river water; wetland development and maintenance; better management of impoundments and streams; and potential effects of herbicides and other pollutants such as selenium, heavy metals, and acid precipitation. Ecological studies determine effects of projects and water management on the environment, provide data to design projects for minimum impact, and develop general limnology data and planning tools for predicting future impact.

(3) New Methods and Materials (formerly Engineering and Materials Construction Technologies)	($1,364,387)	($1,950,000)

New Methods and Materials - is focused on improving the design, operation, and maintenance of water storage, hydropower, and pumping facilities. Included is research on materials; on foundation and earthquake considerations; and on improved methods of excavation, construction, operation, and maintenance. The goal is to improve the economy, efficiency, and safety of engineering structures. Major investigations are undertaken in the areas of concrete and structures, hydraulics, geotechnology, materials, and instrumentation. Dam Safety research is covered under this line item beginning in FY 1991.

SCHEDULE OF SCIENCE AND TECHNOLOGY PROGRAM

PROGRAM ITEM	PROGRAM FY 1990	ESTIMATE FY 1991
Water Technology and Environmental Research (continued)		
(4) Power Systems	($ - 0 -)	($ 600,000)

Power Systems - will develop computer programs, electronic devices, and management methods to enhance operation and maintenance of powerplants and other power facilities to reduce costs and improve system reliability, stability, and safety. Includes the former Advanced Energy Applications category.

PROGRAM ITEM	PROGRAM FY 1990	ESTIMATE FY 1991
(5) Dam Safety	($ 400,000)	($ - 0 -) *

Dam Safety - research will identify existing technology, determine what new information is needed, and develop technology to assure that existing and planned structures have the highest possible degree of safety. Areas to be studied are risk analysis, dam foundations, dam structures, floods, spillways and outlet works, earthquakes, and instrumentation. (* Funded under New Methods and Materials)

PROGRAM ITEM	PROGRAM FY 1990	ESTIMATE FY 1991
(6) Technology Transfer	($ 100,000)	($ 150,000)

A formal **Technology Transfer** program has been structured to comply with the federal Technology Transfer Act of 1986 (P.L. 99-502). It will place increased emphasis on dissemination of findings, encourage other institutions to utilize Reclamation-developed technologies, and aggressively seek partners to enter into cooperative agreements to ensure maximum benefit from Reclamation programs and the transfer of technology to others.

PROGRAM ITEM	PROGRAM FY 1990	ESTIMATE FY 1991
(7) Resource Optimization (formerly Resource Optimization and Management)	($ 650,000)	($ 500,000)

Resource Optimization - will emphasize studies to improve power operations and efficiency while attempting also to maximize the other water resource values. Research areas will center around development of computer models and information systems for power generators, water supply, environmental effects, etc.

MA40

SCIENCE AND TECHNOLOGY
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1 ATMOSPHERIC WATER RES MGT PRGM		250,000	225,197	24,803		
2 GLOBAL CLIMATE CHANGE		28,220,000			2,400,000	25,820,000
3 GROUNDWATER RECHARGE DEMO PRGM		27,724,000	1,482,732	8,917,668	4,503,000	12,820,600
4 WTR TECHN/ENVIRNMNTL RESEARCH		121,688,820	3,323,613	4,464,387	6,400,000	107,500,820
5 SUBTOTAL		177,882,820	5,031,542	13,406,858	13,303,000	146,141,420
6 TOTAL OBLIGATIONS		177,882,820	5,031,542	13,406,858	13,303,000	146,141,420
7 METHOD OF FINANCING						
8 APPLICATION OF PRIOR YEAR FUNDS				2,001,458		
9 APPROPRIATION AVAILABLE & REQD				11,405,400	13,303,000	146,141,420
10 NONFEDERAL PARTICIPATION				4,177,000	1,351,000	3,841,000

COLORADO RIVER STORAGE PROJECT
UPPER COLORADO RIVER BASIN FUND

Appropriation Title: Construction Program
Upper Colorado River Basin Fund

SUMMARY OF PRECONSTRUCTION ACTIVITY PROGRAM, FY 1990 and 1991

Project	FY 1990 program	FY 1991 program
Participating Projects:		
Uintah Unit, Central Utah Project	$49,000	$50,000
TOTAL PROGRAM	49,000	50,000
Method of Financing:		
Appropriation available or required	$49,000	$50,000
TOTAL FINANCING	$49,000	$50,000

Purpose of Program: Dependable water supplies are needed in the Upper Colorado River Basin area to expand municipal and industrial water supply systems to meet the needs of population growth, to stabilize irrigated agriculture, to control floodflows, and to supply fish and wildlife and recreation benefits.

During the Preconstruction Activity phase, work will consist of final data collection, geologic studies, material testing, and preparation of final designs and specifications. It also provides for negotiations with local interests leading to execution of repayment contracts prior to the initiation of construction.

The preconstruction activity for the Upper Colorado River Basin Fund appears on the following pages.

REGION:
Upper Colorado

PROJECT DATA SHEET

PROJECT AND STATE: PRECONSTRUCTION ACTIVITY
CENTRAL UTAH PARTICIPATING PROJECT, UINTAH UNIT, UTAH

AUTHORIZATION:
Public Law 94-423, September 28, 1976

LAND CERTIFICATION:
Scheduled for December 1991 1/

DEFINITE PLAN REPORT:
Scheduled for Approval September 1991 1/

Completion Date	% Complete	Date
1/	1/	1/31/90

BENEFIT COST RATIOS

Based on Direct Benefits	Based on Total Ben.	Date
2/ 1.3	2/ 1.4	10/1/90

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 14/		$198,542,000
Recreational-Fish and Wildlife	3/	3,451,000
Net Property and Other Transfers:		
Federal Participation		
Non-Federal Participation		1,126,000
Adjustment 4/		1,242,000
Total to be Allocated		$204,361,000

Allotments to September 30, 1989	$ 5,772,501
Allotments for FY 1990	49,000
Allotments to Date	$ 5,821,501
Allotments Required for FY 1991	50,000
Balance to Complete after FY 1991	$192,670,499

ALLOCATIONS 5/

Irrigation	$107,822,000
Power	
M&I Water 6/	5,234,000
Recreation	3,223,000
F&WL	86,085,000
Flood Control	1,997,000
Other	
Total	$204,361,000

REPAYMENT

Amount Repaid by:		
Irrigators	7/	$ 4,650,000
M&I Water	7/	3,449,000
Amount Repaid by UCRBF Revenues	8/	94,534,000
CRDF	9/	246,000
Ad Valorem Tax	10/	1,777,000
Amt. deferred-Leavitt Act	11/	8,400,000
Nonreimbursable	12/	91,305,000
Total		$204,361,000

AMOUNTS PER ACRE

Irrig. Invest/Acre	$1,606
Repayment of Investment per Acre:	
By Irrigators	69
By Power Revenues	
By M&I Water Users	
By UCRBF Rev.	1,408
By CRDF	4
Deferred under Leavitt Act	125

Payment Capacity per Acre	$4.60
Annual Charges:	
O&M	.80
Construction	3.80
Total	$4.60

STATUS OF REPAYMENT CONTRACT: Repayment contract with Central Utah Water Conservancy District scheduled for execution November 1991, validation December 1991. 1/

STATUS OF NEPA COMPLIANCE: Projectwide environmental statement was filed with Environmental Protection Agency, draft July 19, 1978, revised draft scheduled November 1990, while the final is scheduled for August 1991. 1/

DESCRIPTION: The project is located in Duchesne and Uintah Counties near Roosevelt in northeastern Utah. This is a multipurpose project which would provide a full water supply to approximately 7,820 acres of Indian lands and a supplemental supply to 34,160 acres of Indian lands and 25,150 acres 13/ of non-Indian lands. It would provide a firm supply of 1,000 acre-feet for municipal and industrial purposes. Benefits for recreation, fish and wildlife, and flood control would also result. Crops presently grown are alfalfa, pasture, and small grains mainly to support the production of livestock, consisting of dairy cattle, beef cattle, and sheep. It is anticipated that with project water, livestock production would be expanded as well as the livestock feeds.

PROJECT DATA SHEET - 2
CENTRAL UTAH PARTICIPATING PROJECT, UINTAH UNIT, UTAH

OTHER INFORMATION: Funds to initiate preconstruction activity were appropriated in FY 1976. The data in this PF-65 are based on the plan presented in the August 1978 draft Definite Plan Report. However, since that time, preconstruction drilling has disclosed geological problems with both damsites, and preconstruction studies have shown the authorized plan is no longer engineering/economically justified. Planning efforts are now directed toward accomplishing the studies as set forth in the November 9, 1982, agreement entitled "Interim Exploration and Planning Agreement Regarding Ute Water Resources" between the Bureau of Reclamation and the Ute Tribal Business Committee. Status Report No. 1 was presented to the Ute Tribal Business Committee on June 30, 1983. The Bureau is awaiting comments from the Tribe. Negotiations were held between the Secretary of the Interior's negotiating team and the Ute Indian Tribe to evaluate alternatives to meet terms of the 1965 Deferral Agreement. The tribe did not respond to the negotiating team proposal.

In February 1988 the tribe adopted a resolution that outlined things needed to resolve issues related to water rights and water development. In April 1988, the Assistant Secretary of the Interior again appointed a negotiation team to settle claims with the Indians.

Footnotes:

1/ Preconstruction activity is scheduled to be completed in FY 1991. The 1-year delay from the FY 1990 Budget Justifications is required to consider additional input from the Ute Indian Tribe. Construction is estimated to require 5 years.

2/ No change in ratios as projected in the FY 1990 Budget Justifications. The ratios were computed by using the authorized interest rate of 3.25 percent.

3/ Includes $228,000 specific fish and wildlife cost and $3,223,000 specific recreation costs.

4/ Reimbursable interest during construction.

5/ The methodology of cost allocation has not changed. An explanation of the changes in allocations between fiscal year 1990 and fiscal year 1991 is as follows:

Allocation	FY 1990 estimate	FY 1991 estimate
Irrigation	$107,822,000	$107,822,000
M&I	5,234,000	5,234,000
Recreation	3,223,000	3,223,000
Fish and Wildlife	86,085,000	86,085,000
Flood Control	1,997,000	1,997,000
Total	$204,361,000	$204,361,000

Footnotes: (continued)

6/ Includes $1,242,000 interest during construction.

7/ The scheduled amount to be repaid will be covered by contracts with project beneficiaries before construction is initiated.

8/ From Upper Colorado River Basin Fund revenues apportioned to the State of Utah.

9/ Includes $238,000 for irrigation costs and $8,000 for municipal and industrial water costs.

10/ Local water users will pay 66 percent and ad valorem taxes will pay 34 percent of all project costs allocated to M&I water.

11/ Amount for costs allocated to Indian irrigation. The Leavitt Act permits repayment to be deferred as long as the land is in Indian ownership.

12/ Includes $1,997,000 for flood control, $86,085,000 for fish and wildlife, and $3,223,000 for recreation.

13/ Reflects total irrigable acreage that can receive project water. Water available will only serve 11,000 acres of irrigable land. Allocation of water to project lands has not been accomplished.

14/ Appropriations authorized are $192,414,000 (October 1989) under Public Law 94-423. The comparable Federal obligation is $201,993,000 which does not exceed the appropriation ceiling by more than 5 percent nor the amount of contingencies included in the obligations. Estimating data are not firm enough to determine if additional appropriation ceiling is necessary. The situation will be analyzed periodically as new and more precise data become available to determine the impact of the changes.

Appropriation Title: Construction Program
Upper Colorado River Basin Fund

CENTRAL UTAH PARTICIPATING PROJECT - UINTAH UNIT, UTAH
PRECONSTRUCTION ACTIVITY - 4

Summarized Financial Data:

Total estimated preconstruction program		$5,871,501
Estimated obligations as of September 30, 1989	$5,772,501	
FY 1990 program	49,000	
FY 1991 program	50,000	
Balance to complete after September 30, 1991	0 1/	

Justification: A dependable water supply is needed in this economically depressed area. Many of the economic difficulties in the project area stem from the area's dependency on the livestock industry and the lack of sufficient irrigation water for production of adequate feed supplies for livestock. The unemployment rate in the project area is extremely high, particularly for the Indians who form a large percentage of the local population. Project water would help the agricultural development and improve the economic and social conditions of the Indians. Part of the storage in the project reservoirs would replace irrigation storage presently provided by 13 upstream mountain reservoirs. This would permit these lakes to be stabilized and further developed for fish and wildlife and recreation use, which in turn would increase tourism trade in the project area. The project would virtually eliminate flooding of agricultural lands, allowing for earlier planting on lands which were previously inundated by spring floods and subjected to loss by frequent changes in stream channels.

The unit is actively supported by Utah State Department of Natural Resources, Central Utah Water Conservancy District, / Uintah Water Conservancy District, Utah Division of Wildlife Resources, Indian interests, irrigation companies, and local landowners.

FISCAL YEAR 1991

Work Proposed	Program
The program provides for completion of preconstruction activities.	$ 50,000

1/ Preconstruction activity is scheduled to be completed in September 1991.

RZ40

CUP, UINTAH UNIT (CRSPP)
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

	PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1	* PRECONSTRUCTION ACTIVITY						
2	** UINTAH UNIT (CUP)						
3			7,152,545	7,053,545	49,000	50,000	
4	* PRECONSTRUCTION ACTIVITY		7,152,545	7,053,545	49,000	50,000	
5	TOTAL PROGRAM COST		7,152,545	7,053,545	49,000	50,000	
6	OTHER CONSOL. EXPEND & CREDIT		1,281,044-	1,281,044-			
7	TOTAL EXPENDITURES		5,871,501	5,772,501	49,000	50,000	
8	TOTAL FEDERAL EXPENDITURES		5,871,501	5,772,501	49,000	50,000	
9	TOTAL RECLAMATION EXPENDITURES		5,871,501	5,772,501	49,000	50,000	
10	TOTAL RECLAMATION OBLIGATIONS		5,871,501	5,772,501	49,000	50,000	
11	TOTAL FUNDED OBLIGATIONS		5,871,501	5,772,501	49,000	50,000	
12	METHOD OF FINANCING						
13	APPROPRIATION AVAILABLE & REQD				49,000	50,000	

REGION:
Upper Colorado

PROJECT DATA SHEET

PROJECT AND STATE:
DOLORES PARTICIPATING PROJECT, COLORADO

Completion Date	% Complete	Date
1996 1/	66	1/31/90

AUTHORIZATION:
Public Law 90-537, September 30, 1968; Public Law 98-569, October 30, 1984

LAND CERTIFICATION:
June 28, 1977

DEFINITE PLAN REPORT: 2/ Second supplement to DPR
Approved March 24, 1989

BENEFIT COST RATIOS		
Based on Direct Benefits	Based on Total Ben.	Date
3/ 0.9	3/ 1.0	10/1/90

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation)	17/	$458,839,000
Recreational-Fish and Wildlife	4/	28,003,000
Net Property and Other Transfers:		
Federal Participation		3,879,000
Non-Federal Participation		
Adjustment 5/		6,476,000
Total to be Allocated		$497,195,000

Allotments to September 30, 1989	$305,030,872
Allotmentr for FY 1990	38,730,000
Allotments to Date	$343,760,872
Allotments Required for FY 1991	49,050,000
Balance to Complete after FY 1991	$ 66,028,128

ALLOCATIONS 6/	
Irrigation	$323,433,000
Power	20,353,000
M&I Water	15,167,000
Recreation	15,888,000
F&WL	72,782,000
Flood Control	2,830,000
Hwy. Improvement	1,513,000
Salinity Control	26,329,000
Other 7/	18,900,000
Total	$497,195,000

REPAYMENT		
Amount Repaid by:		
Irrigators	8/	$ 7,425,000
Power	9/	20,321,000
M&I Water	10/	15,079,000
Amt. Repaid by LCRBDF/ UCRBF	11/	7,108,000
Apportioned UCRBF Rev.	11/	293,476,000
CRDF & Other Funds	12/	607,000
Ad Val. Tax Rev.	13/	16,600,000
Amt. deferred under Leavitt Act	14/	5,445,000
Nonreimbursable	15/	131,134,000
Total		$497,195,000

AMOUNTS PER ACRE

Irrig. Invest/Acre	$5,245
Repayment of Investment per Acre:	
By Irrigators	120
By Power Revenues	
By M&I Water Users	
By UCRB Rev.	4,760
By Ad Val. Tax	269
CRDF & Contr. Funds	8
Indian Irrigation (Deferred)	88

Payment Capacity 16/ per Acre	$25.90
Annual Charges:	
O&M	21.70
Construction	4.20
Total	$25.90

STATUS OF REPAYMENT CONTRACT: Repayment contract with Dolores Water Conservancy District executed September 23, 1977, validated September 23, 1977. Repayment contract with Ute Mountain Ute Indian Tribe executed April 21, 1989.

STATUS OF NEPA COMPLIANCE: Projectwide final environmental statement was filed with Council on Environmental Quality May 9, 1977. Draft supplement to the final environmental statement was filed March 1988, and final supplement to the environmental statement was filed March 24, 1989.

PROJECT DATA SHEET - 2
DOLORES PARTICIPATING PROJECT, COLORADO

DESCRIPTION: The project is located in Montezuma and Dolores Counties in southwestern Colorado. This is a multipurpose project which will provide 12,750 A/ kilowatts of installed capacity for generation of power, 8,700 acre-feet annually of municipal and industrial water supplies including new municipal and industrial supply for the Ute Mountain Ute Indians. The project will provide a full water supply for the irrigation of 27,860 acres of land in the Dove Creek area and 7,500 acres located on the Ute Mountain Ute Indian Reservation near Towaoc. A supplemental supply will be provided for 26,300 acres of presently irrigated land. By lining and combining canal systems of the Montezuma Valley Irrigation Company (MVIC) salt loading would be reduced by 24,500 tons. Since irrigation of new lands in the Dolores Project would increase salt loading 50,650 tons, the net effect of the Dolores Project on salt loading would be to add 26,150 tons of salt to the Colorado River annually. Benefits will also result from recreation, fish and wildlife enhancement, and flood control. Crops grown in the full service area presently under dry farming are pinto beans and wheat. It is anticipated that with project water there will be increased production of alfalfa, small grains, corn and pasture similar to the adjacent irrigated lands.

OTHER INFORMATION: Funds to initiate advance planning were appropriated in FY 1970 and construction in FY 1977. Monument Creek Dam and Reservoir and related recreation and fish and wildlife improvements, and the Cortez-Towaoc M&I Pipeline have been removed from the funded program of the project as they will be constructed by the Dolores Water Conservancy District, and the State of Colorado.

Public Law 98-569 authorized salinity control as a purpose of the Dolores Project and combines features of the McElmo Creek Unit, Colorado River Water Quality Improvement Program, with the Dolores Project.

Footnotes:

A/ Reduced kilowatt capacity as shown in FY 1990 Budget Justifications due to actual design quantities.

1/ No change from FY 1990 Budget Justifications.

2/ Definite Plan Report approved July 5, 1977, first supplement approved January 8, 1982.

3/ No change from FY 1990 Budget Justifications.

4/ Represents specific recreation costs of $15,888,000 and fish and wildlife mitigation costs of $4,624,000, and fish and wildlife enhancement costs of $7,491,000.

5/ Represents reimbursable interest during construction of $2,794,000 for power, $3,558,000 for municipal and industrial water facilities, and $122,000 for salinity control at the Dolores authorized project rate of 6.063 percent.

PROJECT DATA SHEET - 3
DOLORES PARTICIPATING PROJECT, COLORADO

6/ The methodology of cost allocation has not been modified. An explanation of the changes in allocations between FY 1990 and FY 1991 is as follows:

Allocation	FY 1990 estimate	FY 1991 estimate
Irrigation	$318,064,000	$323,433,000
Power	20,016,000	20,353,000
Municipal and Industrial Water	14,915,000	15,167,000
Recreation	15,734,000	15,888,000
Fish and Wildlife	71,597,000	72,782,000
Flood Control	2,783,000	2,830,000
Highway Improvement	1,513,000	1,513,000
Salinity Control	25,110,000	26,329,000
Other	18,394,000	18,900,000
Total	$488,126,000	$497,195,000

Explanation	Amount of Change
Revised estimates on McPhee Dam Reservoir outlet works, roads and paving, +1,304,000; McPhee Dam Powerplant, +54,000; all pumping plants, canals, transmission line and lateral systems, -504,000; Recreation and Fish and Wildlife Facilities, +332,000; Cultural Resources, +506,000; Permanent Operating Facilities, +639,000	$+2,331,000
Interest during construction	+ 111,000
Cost indexing	+6,627,000
Total	$+9,069,000

PROJECT DATA SHEET - 4
Dolores Participating Project, Colorado

Footnotes: (continued)

The allocation to irrigation increased due to cost indexing and updating estimates of the remaining facilities. The allocation to power increased due to cost indexing and revised estimate. The allocation to municipal and industrial water increased due to indexing of costs. The allocation to recreation increased due to revised estimates of recreation facilities. The allocation to fish and wildlife increased due to indexing of benefits. The allocation to flood control increased due to cost indexing and revised estimates. The allocation to salinity control increased due to revised estimates. The allocation to other increased due to increased estimate of cultural resources.

7/ For nonreimbursable cultural resource activities (Public Law 93-291 and Public Law 96-301).

8/ The amount to be repaid of $7,425,000 is covered by contract with the Dolores Water Conservancy District.

9/ Repayment of power investment to be accomplished through existing contracts between the Western Area Power Administration and the power users generated by CRSP Power Rate (Schedule SP-F1) effective on or after January 23, 1981.

10/ The amount to be repaid for 7,700 acre-feet of the project municipal and industrial supply of 8,700 acre-feet, is covered by an existing contract with Dolores Water Conservancy District. The additional 1,000 acre-feet are assigned to the Ute Mountain Ute Indian Tribe and will be contracted for prior to delivery.

11/ Public Law 92-149 and Public Law 93-320, section 205, as amended by Public Law 98-569, state that all general investigation costs ($2,922,000) and 70 percent of all other salinity ($23,285,000) costs will be nonreimbursable. The other 30 percent is divided for salinity control purposes between the Lower Colorado River Basin Development Fund, $5,938,000, with no IDC because payment is expected during construction; and the Upper Colorado River Basin Fund, $1,048,000 for construction plus $122,000 for reimbursable IDC. This amount is based on benefits to be derived by each basin from the use of water of improved quality, causes of salinity, and availability of revenues, provided that costs allocated to the upper basin shall not exceed 15 percent of the construction costs allocated to the upper and lower basin funds.

12/ Includes $475,000 from the Colorado River Development Fund, $32,000 from the BIA (Bureau of Indian Affairs), and $100,000 contributed from Shell Oil Company towards construction of Bradfield Bridge and applied to irrigation costs. The Colorado River Development Fund will be prorated $56,000 for municipal and industrial water, $32,000 for power, and $387,000 for irrigation costs. The BIA funds will be applied toward repayment of the municipal and industrial obligation of the Indians.

Footnotes: (continued)

13/ Credited to irrigation. The ad valorem tax revenue estimate has been updated from the estimate included in the DPR ($4,300,000). The new estimate uses a 1986 base ($140,875,000) to project future growth in the assessed valuation of the district. The DPR used a 1975 base of $26,115,000.

14/ Amortization capacity of Indian irrigation. The Leavitt Act permits repayment to be deferred as long as the land is in Indian ownership.

15/ Includes $15,888,000 recreation costs, $72,782,000 fish and wildlife costs, $2,830,000 flood control, $18,900,000 for cultural resources activities (Public Law 96-301), $1,513,000 highway improvement (Public Law 93-251) and $19,221,000 for salinity control.

16/ Increased from $24.90 as shown in the fiscal year 1990 Budget Justifications due to an adjustment for irrigation caused by the increase in the project cost estimate.

17/ Appropriations authorized are $1,366,174,000 (October 1990). The comparable Federal obligation is $1,375,511,851 which does not exceed the appropriation ceiling by more than 5 percent nor the amount of contingencies included in the obligation. Estimating data are not firm enough to determine if additional appropriation ceiling is necessary. The situation will be analyzed periodically as new and more precise data becomes available to determine the impact of the changes.

PHYSICAL DATA ON STRUCTURES - 6
DOLORES PARTICIPATING PROJECT, COLORADO

CONSTRUCTION PROGRAM:

McPhee Dam and Reservoir

Dam:
Type - Earthfill
Structural Height - 270 feet
Crest Length - 1,300 feet
Crest Width - 30 feet

Spillway:
Type - Gated concrete chute
Design Discharge - 33,300 cubic feet per second
Outlet Works - 5,000 cubic feet per second

Reservoir Capacity:
Total Storage - 381,000 acre-feet
Water Surface Area - 4,470 acres

Powerplant:
McPhee - one generating unit - 1,350 kilowatts   Generating Head - 218 feet   Flow - 75 cubic feet per second

Switchyard: 1,375 kilovolts ampere

Transmission Lines: 12.5 kilovolts   Length: 4.5 miles

Great Cut Dike

Dam:
Type - Earthfill
Structural Height - 64 feet
Crest Length - 1,900 feet
Crest Width - 30 feet

Spillway:
Type - None
Outlet Works - 820 cubic feet per second

Dove Creek Distribution System

Great Cut Pumping Plant
Capacity - 380 cubic feet per second at 108-foot total head

PHYSICAL DATA ON STRUCTURES - 7
DOLORES PARTICIPATING PROJECT, COLORADO

Dove Creek Distribution System (continued)

Sprinkler Pumping Plants

Three pumping plants to provide water to pipe laterals for sprinkler irrigation. Capacity 43 to 100 cubic feet per second with total heads from 115 to 177 feet.

Dove Creek Canal - Length - 32.8 miles   Canal Capacity - 380 to 46 cubic feet per second

South Canal Distribution System

Sprinkler Pumping Plants

Two pumping plants to provide water to pipe laterals for sprinkler irrigation. Capacity 44 and 62 cubic feet per second with total heads of 180 feet each.

South Canal - Length - 6.9 miles   Canal Capacity - 150 to 106 cubic feet per second

Cortez-Towaoc Distribution System

Dolores Tunnel - Length - 1.3 miles   Diameter - 9 feet   Capacity - 520 cubic feet per second

Dolores Canal - Length - .6 miles   Canal Capacity - 520 to 70 cubic feet per second

Towaoc Canal- Length - 39.9 miles 1/   Canal Capacity - 420 to 135 1/ cubic feet per second

Cortez-Towaoc M&I Pipeline 2/

MVIC Canals Lining - 9.2 miles (Upper Hermana and Lone Pine)

1/ Changed to reflect actual design quantities.

2/ Construction will be performed by non-Federal entities.

PHYSICAL DATA ON STRUCTURES - 8
DOLORES PARTICIPATING PROJECT, COLORADO

Powerplant:

Towaoc Canal - One generating unit - 11,400 kilowatts 1/ Dynamic Head - 410 feet 1/ Flow - 375 cubic feet per second

Penstock: 2.2 miles, 78-inch pipe 2/

Switchyard: 14,580 kilovolts ampere

Transmission Lines: 115 kilovolts Length - .25 miles

Laterals

Thirteen lateral pipe systems with a total of 102 miles to deliver water to farms in the Dove Creek and Towaoc areas: Dove Creek - seven systems 82 miles; Rocky Ford - one system 8 miles; Towaoc - three systems 31 miles 1/

Drains

73 miles of buried pipe drains.

Land and Rights 3/

Quantity - 8,169
Total Estimated Cost - $12,062,137
Cost Per Acre - $1,477
Acquisition - 95 percent complete as of September 30, 1989

Relocations 4/

Total estimated cost - $18,599,000
Percent complete - 99 percent complete as of September 30, 1989

Items	Length (miles)	Total cost	Cost to September 30, 1989
County roads	60.7 1/	$15,010,000	$14,957,000
Various electrical, telephone, utilities, and graves		1,018,000	1,018,000
Sewage treatment plant, plug MVIC tunnel		2,571,000	2,571,000
TOTAL		$18,599,000	$18,546,000

1/ Changed to reflect actual design quantities.

2/ Not included in FY 1990 Budget Justifications.

3/ Total cost increased due to new estimates of Dove Creek Canals, Towaoc Canal and a new requirement for 136 acres of land for Rocky Ford laterals.

4/ Estimated cost increased from $17,849,000 as presented in FY 1990 Budget Justifications. County roads increased $750,000 based on modifications and new estimates.

Appropriation Title: Construction Program
Upper Colorado River Basin Fund

DOLORES PARTICIPATING PROJECT, COLORADO - 9

FISCAL YEAR 1991

Work Proposed	Program
McPhee Dam and Powerplant. - Construction activities will continue on McPhee Dam Powerplant.	$1,931,000
Dove Creek Distribution System. - Contracts will be awarded for Dove Creek substation/distribution line. The contract for Dove Creek Canal, Reach III will complete. The construction of the Dove Creek Pumping Plant-Cross Canyon-Monument Creek Laterals will continue.	4,426,000
South Canal Distribution System. - Operation and maintenance of current facilities will continue.	181,000
Cortez-Towaoc Distribution System. - Contracts will be awarded for Towaoc Canal, Reach III; Rocky Ford Laterals; Towaoc Laterals; Towaoc Powerplant and Canal III transmission lines. Contracts will continue for Towaoc Canal, Reach I, and Reach II, and Towaoc Canal powerplant, penstock turbine, and generator. Land acquisition for Rocky Ford Laterals will be completed.	40,290,000
Drains: - Preconstruction activities will continue.	150,000
Permanent Operating Facilities. - The installation of the automatic controls and communication systems will continue.	1,875,000
Service Facilities, Depreciation, and Salvage. - Purchase of office and field equipment will continue.	12,000
Other Project Costs. - Cultural resource activities will continue.	$ 185,000
TOTAL	$49,050,000

RZ40

DOLORES PROJECT (CRSPP)
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PAGE 1

	PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1	* CONSTRUCTION COSTS						
2	** MCPHEE DAM AND POWERPLANT						
3			162,666,000	158,009,358	1,334,000	1,931,000	1,391,642
4	** DOVE CREEK DISTRIBUTION SYSTEM						
5			86,477,000	70,771,555	10,141,000	4,425,000	1,139,445
6	** SOUTH CANAL DISTRIBUTION SYSTM						
7			29,574,000	18,721,644	8,966,000	181,000	1,705,356
8	** CORTEZ/TOWAOC DISTRIBUTION SYS						
9			141,073,000	32,429,502	17,639,000	40,291,000	50,713,498
10	** DRAINS						
11			9,037,000	265,760		150,000	8,621,240
12	** PERMANENT OPERATING FACILITIES						
13			11,543,000	2,303,383	1,813,000	1,875,000	5,551,617
14	** O/M HOUSING						
15			62,000	774			61,226
16	** SERVICE FACILITIES/DEPRE/SALVG						
17				1,662,246	39,000	12,000	1,713,246-
18	* CONSTRUCTION COSTS		440,432,000	284,164,222	39,932,000	48,865,000	67,470,778
19	* OTHER PROJECT COSTS						
20			22,286,000	21,681,996	201,000	185,000	218,002
21	TOTAL PROGRAM COST		462,718,000	305,846,220	40,133,000	49,050,000	67,688,780
22	OTHER CONSOL. EXPEND & CREDIT		3,879,000-	1,925,224-	293,124-		1,660,652-
23	TOTAL EXPENDITURES		458,839,000	303,920,996	39,839,876	49,050,000	66,028,128
24	TOTAL FEDERAL EXPENDITURES		458,839,000	303,920,996	39,839,876	49,050,000	66,028,128
25	TOTAL RECLAMATION EXPENDITURES		458,839,000	303,920,996	39,839,876	49,050,000	66,028,128

DOLORES PROJECT (CRSPP)
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1 UNDELIVERED ORDERS			1,007,863	1,007,863-		
2 TOTAL RECLAMATION OBLIGATIONS		458,839,000	304,928,859	38,832,013	49,050,000	66,028,128
3 TOTAL FUNDED OBLIGATIONS		458,839,000	304,928,859	38,832,013	49,050,000	66,028,128
4 METHOD OF FINANCING						
5 APPLICATION OF PRIOR YEAR FUND				102,013		
6 APPROPRIATION AVAILABLE & REQD				38,730,000	49,050,000	66,028,128

REGION:
Upper Colorado

PROJECT DATA SHEET

PROJECT AND STATE:
ANIMAS-LA PLATA PARTICIPATING PROJECT, COLORADO-NEW MEXICO

AUTHORIZATION:
Public Law 90-537, September 30, 1968; Public Law 100-585, November 3, 1988

LAND CERTIFICATION:
January 19, 1982

DEFINITE PLAN REPORT:
Approved August 18, 1980

Completion Date	% Complete	Date
1/	0	1/31/90

BENEFIT COST RATIOS

Based on Direct Benefits	Based on Total Ben.	Date
2/ 1.4	2/ 1.5	10/1/90

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation)	17/	$340,233,500
Recreational-Fish and Wildlife	3/	11,800,000
Net Property and Other Transfers:		
Federal Participation		2,100,000
Non-Federal Participation	4/	212,971,500
Adjustment	5/	21,960,000
Total to be Allocated		$589,065,000

Allotments to September 30, 1989	$ 9,796,205
Allotments for FY 1990	5,817,000
Allotments to Date	15,613,205
Allotments Required for FY 1991	13,415,000
Balance to Complete after FY 1991	$311,205,295

ALLOCATIONS 6/

Irrigation	$439,468,000
Power	
M&I Water 7/	100,816,000
Recreation	10,800,000
F&WL	18,181,000
Flood Control	
Other 8/	19,800,000
Total	$589,065,000

REPAYMENT

Amount Repaid by:	
Irrigators	$20,430,000
Ad Valorem Tax	27,817,000
M&I Water 9/	74,865,000
Cost Sharing Agreement 10/	212,947,000
Amount Repaid by UCRBF Revenue 11/	212,035,000
Contrib. Funds 12/	254,000
CRDF 13/	654,000
Amount deferred under Leavitt 14/	6,322,000
Nonreimbursable 15/	33,741,000
Total	$589,065,000

AMOUNTS PER ACRE

Irrig. Invest/Acre	$6,497
Repayment of Investment per Acre:	
By Irrigators	315
Ad Valorem Tax	412
By M&I Water Users	0
By CRDF & Cont. Funds	10
Deferred	12
By UCRBF Revenue	3,205
Cost Sharing Agr.	2,543

Payment Capacity per Acre 16/	$46.20
Annual Charges:	
O&M	36.30
Construction	9.90
Total	$46.20

STATUS OF REPAYMENT CONTRACT: In accordance with P.L. 99-88, binding agreements with non-Federal entities desiring to participate in project construction, were executed June 30, 1986. The repayment contract with the Animas-La Plata District, Colorado, was signed on January 11,1988, and validated April 20, 1988. The repayment contract with the San Juan Water Commission, New Mexico, is scheduled for execution in December 1989 and validation in January 1990. The contract negotiations with the Navajo Tribe and the La Plata Conservancy District, New Mexico, will be initiated some time after construction begins on the project. Repayment contracts are scheduled for execution with the Southern Ute in February 1990 and Ute Mountain Ute Tribes in March 1990.

STATUS OF NEPA COMPLIANCE: Projectwide final Environmental Impact Statement was filed with Environmental Protection Agency July 1, 1980.

PROJECT DATA SHEET - 2
ANIMAS-LA PLATA PARTICIPATING PROJECT, COLORADO-NEW MEXICO

DESCRIPTION: The project is located in La Plata and Montezuma Counties of southwestern Colorado and in San Juan County of northwestern New Mexico. This is a multipurpose project which would provide 80,100 acre-feet annually of municipal and industrial (M&I) water supplies with new M&I water supplies allocated for the Navajo Tribe 7,600, the Ute Mountain Ute Indians 6,000, and the Southern Utes 26,500. M&I water will also be provided for Colorado non-Indians 9,200 a/; and for New Mexico communities and rural areas 30,800. The project will provide a full water supply for the irrigation of 11,980 acres of Ute Mountain Ute Indian land, 31,500 acres of non-Indian land in Colorado, 1,800 acres of Southern Ute Indian Reservation land; and 4,530 acres of non-Indian land in New Mexico. A supplemental supply will be provided for 17,650 acres of presently irrigated land. Benefits will also result from recreation, and F&WL enhancement. The crops presently grown are hay, pasture, and small grains. It is anticipated that with project water, the trend would be toward more intensive farming and the production of livestock and cash crops.

OTHER INFORMATION: Funds to begin advance planning were appropriated in FY 1971. Under the cost-sharing agreement in principle executed on June 30, 1986, the Animas-La Plata Project will be developed in two phases. The first phase provides irrigation service for 42,815 acres, municipal and industrial water service, and some recreation and fish and wildlife features with a total estimated cost of $422,360,000 (October 1990 price levels). The second phase will provide for irrigation service to 24,645 acres and additional recreation and fish and wildlife mitigation features at a total estimated cost of $144,745,000 (October 1990 price levels). The second phase will be financed and constructed by the project sponsors in the States of Colorado and New Mexico.

In accordance with Public Law 100-585, the Indian tribes will receive irrigation service to 1,413 acres and municipal and industrial water service under the first phase of the Animas-La Plata Project and municipal and industrial water service from the nearby Dolores Project. The tribes will also receive irrigation service to 12,367 acres under the second phase of the project. In addition, a tribal development fund of $60.5 million would be provided, $11 million of which would be funded by the State of Colorado and the balance would be provided by the Federal Government.

Footnotes:

a/ Municipal and industrial water for Durango and La Plata and adjacent rural areas.

1/ A cost-sharing agreement was signed on June 30, 1986, by State, Federal, and Tribal entities wherein it was agreed that phase I of the project would be constructed in not less than 12 years from initial construction. Initial construction will begin on phase I facilities in fiscal year 1990. Phase 2 facilities will be completed by project sponsors in the States of Colorado and New Mexico on such schedules as they deem practicable.

Footnotes: [continued]

2/ No change from the fiscal year 1990 Budget Justification. The ratios were computed by using the authorized interest rate of 3.25 percent. The benefit-cost ratio includes interest during construction on both Federal and non-Federal contributions where applicable.

3/ Includes specific phase 1 recreation costs of $7,100,000 and specific phase 1 fish and wildlife mitigation costs of $4,700,000. Facilities built in phase 2 will be the responsibility of non-Federal entities.

4/ Contributions for advance planning of $24,500 in cash made by: Colorado Water Conservation Board, $10,000; Southwest Water Conservancy District, $7,500; City of Durango, $2,000; La Plata County, $2,000; La Plata Water Conservancy District, Colorado, $1,850; La Plata Conservancy District, New Mexico, $650; the Southern Ute Tribe, $500; Phase 1 construction would have a non-Federal cash contribution of $68,202,000 to be made by: Colorado Water Resources and Power Development Authority $42,400,000; Animas-La Plata Water Conservancy District $7,375,000; Montezuma County $50,000; San Juan Water Commission $12,777,000; State of Colorado $5,600,000. Phase 2 will be financed and constructed by non-Federal entities at an estimated cost of $144,745,000. This includes $3,700,000 for Recreation, $140,000 for Fish and Wildlife Facilities and $6,300,000 for cultural resource activities.

5/ Represents reimbursable interest during construction at 10.25 percent for municipal and industrial water facilities, federally financed during construction. The interest rate will change each year until construction begins.

6/ The methodology of cost allocation has not been modified. An explanation of the changes in allocation between FY 1990 and FY 1991 is as follows:

Allocation	FY 1990 estimate	FY 1991 estimate
Irrigation	$399,198,000	$439,468,000
Municipal and Industrial Water	129,760,000	100,816,000
Recreation	10,500,000	10,800,000
Fish and Wildlife	23,007,000	18,181,000
Other	19,700,000	19,800,000
Total	$582,165,000	$589,065,000

Explanation	Amount of Change
Interest during construction	$ +155,000
Cost Indexing	+6,745,000
Total	$+6,900,000

The allocations to municipal and industrial water and fish and wildlife decreased as previous submission erroneously had assigned amounts to Phase II development. Current analysis finds no municipal and industrial water or fish and wildlife enhancement in Phase II development. Irrigation increased due to assignment of costs of Phase II development previously assigned to municipal an industrial water and fish and wildlife. All other cost increases are due to cost indexing.

PROJECT DATA SHEET - 4
ANIMAS-LA PLATA PARTICIPATING PROJECT, COLORADO-NEW MEXICO

Footnotes: [continued]

7/ Includes $21,960,000 reimbursable interest during construction based on the current Colorado River Storage Project interest rate.

8/ For nonreimbursable cultural resource activities [Public Law 96-301].

9/ The scheduled amount to be repaid will be covered by contracts with project beneficiaries before construction is initiated, except for a contract with the Navajo Indian Tribe.

10/ Cost sharing agreement between the Federal Government and the States of Colorado and New Mexico identify contributions from local interests of $212,947,000 which consists of cash contributions $68,202,000 and credit for non-Federal construction of deferred facilities $144,745,000. These funds were assigned by purpose for repayment as follows: Irrigation $172,230,000, M&I $25,677,000, Recreation $4,596,000, Fish and Wildlife $2,416,000 and Cultural Resources, $8,028,000.

11/ Repaid from net power revenues contained in CRSP Power Rate Schedule [SP-F1] effective on or after January 23, 1981, Upper Colorado River Basin Fund Revenues, apportioned to State of Colorado at $187,121,000 and New Mexico at $24,914,000.

12/ Contribution includes $229,500 for General Investigations and $24,500 for Advance Planning which are allocated $146,000 for irrigation and $108,000 for municipal and industrial water.

13/ Colorado River Development Fund investigation costs of $654,000 which includes $488,000 for irrigation and $166,000 for municipal and industrial water.

14/ Amount for amortization capacity for Indian irrigation. The Leavitt Act [25 U.S.C. 386a.] permits repayment to be deferred as long as the land is in Indian ownership. This estimate increased from last year due to a reanalysis of irrigation repayment capacity.

15/ Includes $10,800,000 for recreation facilities, $4,840,000 for fish and wildlife mitigation facilities, $13,341,000 for fish and wildlife enhancement and $19,800,000 for the Cultural Resources Activities [Public Law 96-301] less the amounts assigned by the cost sharing agreement as follows: Phase 1 non-Federal financing $4,900,000 consisting of: $896,000 for recreation; $1,675,000 for fish and wildlife enhancement; $601,000 for fish and wildlife mitigation; $1,..8,000 for cultural resources; and Phase 2 non-Federal financing $10,140,000 consisting of: $3,700,000 for recreation, $140,000 for fish and wildlife mitigation; $6,300,000 for cultural resources. Fish and wildlife enhancement has been deleted from Phase 2. [The amounts assigned are arbitrary pro rata allocations and are subject to negotiations with the State of Colorado.]

Footnotes: [continued]

16/ Increased from $45.40 as shown in the fiscal year 1990 Budget Justifications due to adjustment for irrigation caused by increase in project cost estimate.

17/ Appropriations authorized are $1,366,174,000 [October 1990] for this project and other projects authorized by Public Law 90-537. The comparable Federal obligation is $1,375,511,851 which does not exceed the appropriation ceiling by more than 5 percent nor the amount of contingencies included in the obligation. Estimating data are not firm enough to determine if additional appropriation ceiling is necessary. The situation will be analyzed periodically as new and more precise data becomes available to determine the impact of the changes.

PHYSICAL DATA ON STRUCTURES - 6
ANIMAS-LA PLATA PROJECT, COLORADO-NEW MEXICO

CONSTRUCTION PROGRAM:

Ridges Basin Reservoir System

Ridges Basin Dam and Reservoir

Dam:	Spillway:	Reservoir Capacity
Type - Zoned earthfill	Type - Uncontrolled Overflow	Total storage - 280,000 acre feet
Structural Height - 313 feet		
Crest Length - 1,600 feet		
Base Width - 1,670 feet		

Durango Pumping Plant

Pumping Plant:

Fifteen units [dual] Total horsepower - 41,850
441 cubic feet per second

Switchyard:

30,000 kilovolts ampere

Ridges Basin Inlet Conduit	Length [miles]	Diameter [inches]	Capacity [cubic feet per second]
Conduits:			
Ridges Basin Inlet	2.1	102	430

Ridges Basin Delivery System

La Plata Diversion Dam:

Dam: - Type - Concrete ogee overflow
Structural Height - 9.5 feet
Overflow Crest Length - 30 feet
Diversion Capacity - 150 cfs

Ridges Basin Pumping Plant

Pumping Plant:

Ten Units Total horsepower - 38,300
700 cubic feet per second

Switchyard:

30,000 kilovolts ampere

PHYSICAL DATA ON STRUCTURES - 7
ANIMAS-LA PLATA PROJECT, COLORADO-NEW MEXICO

Ridges Basin Delivery System (cont'd)

Dry Side Canal:

Length - 24.3 miles — Capacity - 710 cubic feet per second

Long Hollow Tunnel:

Length 3.2 miles — Diameter - 10.5 feet — Capacity - 710 cubic feet per second

Durango M&I Pipeline

Durango Pipeline:

Length - 3.1 miles — Diameter - 20 inches — Capacity - 11 cubic feet per second

Shenandoah Pipeline: 1/

Length - 7.8 miles — Diameter - 6" - 18" — Capacity - 6 cubic feet per second

Ridges Basin Irrigation System

Pumping Plants:	Units (number)	Total horsepower	Capacity (cubic feet per second)
Red Mesa	8	3,000	77
Alkali Gulch	5	1,100	45
Ute Mountain	6	1,650	56

Laterals

Four laterals with a combined length of 162.2 miles

Switchyards:

5,000 kilovolts ampere

Transmission Lines:

46 kilovolts

Length: 18.5 miles

Southern Ute Reservoir System

Southern Ute Dam and Reservoir

Dam:

Type - Zoned earthfill
Structural Height - 170 feet
Crest Length - 2,900 feet
Base width - 1,010 feet

Spillway

None

Reservoir capacity:

Total Storage -
70,000 acre feet

1/ Renamed from 1990 Budget Justifications.

Southern Ute Reservoir System (cont'd)

Southern Ute Diversion Dam:

Dam:

Type - Concrete ogee overflow
Structural Height - 8.5 feet
Overflow Crest Length - 100 feet

Southern Ute Inlet Canal

Canals:

Length - 3.3 miles
Capacity - 375 cubic feet per second

Southern Ute Irrigation System

Pumping Plants:

	Units (number)	Total Horsepower	Capacity (cubic feet per second)
Southern Ute	4	950	17
Third Terrace	4	750	30

Canal:

New Mexico Irrigation - Length - 3.1 miles
Capacity - 140 cubic feet per second

Laterals:

Two laterals with a combined length of 35.7 miles

Switchyards:

12,000 kilovolts ampere

Transmission Lines:

12.5 kilovolts Length - 12.5 miles

Drains:

Location and length to be determined by subsequent investigation.

PHYSICAL DATA ON STRUCTURES - 9
ANIMAS-LA PLATA PROJECT, COLORADO-NEW MEXICO

Land and Rights 1/

Quantity - 9,535 acres
Total Estimated Cost - $6,449,000
Cost per acre - $676
Acquisition - 0 percent complete as of September 30, 1989

Relocation 2/

Total Estimated Cost - $13,970,000
Percent Complete - 0 percent as of September 30, 1989

Items	Length (miles)	Total cost	Cost to September 30, 1989
Gas Pipelines and Related Facilities	10.8	12,954,000	-
Transmission Lines	4.1	875,000	-
Telephone Cable	1.5	124,000	-
Private Roads	0.3	17,000	-
TOTAL		$13,970,000	-

1/ Estimated costs decreased from FY 1990 Budget Justifications as a result of projected land index.

2/ Estimated costs decreased from FY 1990 Budget Justifications as a result of new estimates of noncontract costs.

Appropriation Title: Construction Program
Upper Colorado River Basin Fund

ANIMAS-LA PLATA PARTICIPATING PROJECT, COLORADO - 10

FISCAL YEAR 1991

Work Proposed	Program
Ridges Basin Dam and Collection System. - Contract for relocation of gas pipeline will continue. Contracts will be awarded for utilities relocations, and for Ridges Basin Access Road. Land for Ridges Basin Reservoir, Durango Pumping Plant, and Ridges Basin Inlet Conduit will be acquired.	13,197,000
Ridges Basin Delivery System. - Preconstruction activities will continue.	301,000
Service Facilities, Depreciation, and Salvage. - The acquisition of office and field equipment will continue.	95,000
Other Project Costs. - Cultural resource mitigation activities will continue.	2,164.000
Non-Federal Cash Participation.	-2,342,000
TOTAL -	$13,415,000

RZ40

ANIMAS-LA PLATA PROJ (CRSPP)
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1 * CONSTRUCTION COSTS						
2 ** RIDGES BASIN DAM/CLLCTN SYSTEM						
3		175,000,000	6,902,562	5,403,000	13,197,000	149,497,438
4 ** RIDGES BASIN DELIVERY SYSTEM						
5		133,600,000	1,257,255	961,000	301,000	131,080,745
6 ** DURANGO M I PIPELINE						
7		4,700,000				4,700,000
8 ** RIDGES BASIN IRRIGATION SYSTEM						
9		109,150,000	1,120,000			108,030,000
10 ** SOUTHERN UTE DAM/CLLCTN SYSTEM						
11		61,400,000	329,850			61,070,150
12 ** SOUTHERN UTE IRRIGATION SYSTEM						
13		26,200,000	327,000			25,873,000
14 ** DRAINS						
15		8,420,000	94,000			8,326,000
16 ** PERMANENT OPERATING FACILITIES						
17		11,150,000	47,000			11,103,000
18 ** O M HOUSING						
19		195,000				195,000
20 ** SERVICE FACILITIES/DEPRE/SALVG						
21			113,869	157,000	95,000	365,869-
22 * CONSTRUCTION COSTS		529,815,000	10,191,536	6,521,000	13,593,000	499,509,464
23 * OTHER PROJECT COSTS						
24		21,650,000	484,983	628,000	2,164,000	18,373,017
25 TOTAL PROGRAM COST		551,465,000	10,676,519	7,149,000	15,757,000	517,882,481
26 OTHER CONSOL. EXPEND & CREDIT		2,100,000-	1,095,023-	209		1,005,186-
27 TOTAL EXPENDITURES		549,365,000	9,581,496	7,149,209	15,757,000	516,877,295
28 NONFEDERAL CASH CONTRIBUTIONS		68,226,500-	24,500-	1,093,000-	2,342,000-	64,767,000-

RZ40 ANIMAS-LA PLATA PROJ (CRSPP) PAGE 2

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

	PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1	NONFEDERAL NONCASH CONTRIBUTION		140,905,000-				140,905,000-
2	TOTAL FEDERAL EXPENDITURES		340,233,500	9,556,996	6,056,209	13,415,000	311,205,295
3	TOTAL RECLAMATION EXPENDITURES		340,233,500	9,556,996	6,056,209	13,415,000	311,205,295
4	UNDELIVERED ORDERS			217,209	217,209-		
5	TOTAL RECLAMATION OBLIGATIONS		340,233,500	9,774,205	5,839,000	13,415,000	311,205,295
6	TOTAL FUNDED OBLIGATIONS		340,233,500	9,774,205	5,839,000	13,415,000	311,205,295
7	METHOD OF FINANCING						
8	APPLICATION OF PRIOR YEAR FUND				22,000		
9	APPROPRIATION AVAILABLE & REQD				5,817,000	13,415,000	311,205,295
10	NONFEDERAL PARTICIPATION				1,093,000	2,342,000	64,767,000

REGION:
Upper Colorado

PROJECT DATA SHEET

PROJECT AND STATE:
CENTRAL UTAH PARTICIPATING PROJECT, BONNEVILLE UNIT, UTAH

Completion Date	% Complete	Date
1/ 1995	60	1/31/90

AUTHORIZATION: Public Law 84-485, April 11, 1956; Public Law 92-370, August 10, 1972; Public Law 100-563, October 31, 1988

BENEFIT COST RATIOS		
Based on Direct Benefits	Based on Total Ben.	Date
2/ 1.3	2/ 1.4	10/1/90

LAND CERTIFICATION: Dec. 28, 1965 Sevier Basin Sched for Sep 1991

DEFINITE PLAN REPORT: Approved November 5, 1965. Supplement scheduled to be approved August 1991.

SUMMARIZED FINANCIAL DATA

Construction Revenues		928,928
Total Federal Oblig. (Reclamation)	16/	$1,693,067,072
Recreational-Fish and Wildlife	3/ 16/	198,573,000
Net Property and Other Transfers:		
Federal Participation	4/	-643,000
Non-Federal Participation	5/	10,000,000
Adjustment	6/	87,262,000
Total to be Allocated		$1,989,188,000

Allotments to September 30, 1989	$ 930,638,100
Allotments for FY 1990	98,754,000
Allotments to Date	$1,029,392,100
Allotments Required for FY 1991	81,773,000
Balance to Complete after FY 1991	$ 581,901,972

ALLOCATIONS 7/	
Irrigation	$ 980,439,000
Power 8/ 9/	16,979,000
M&I Water 9/	493,518,000
Recreation	61,749,000
F&WL	375,281,000
Flood Control	19,542,000
Hwy. Improvement	41,680,000
Other	
Total	$1,989,188,000

REPAYMENT		
Amount Repaid by:		
Irrigators	10/	$16,400,000
Power		16,979,000
M&I Water	10/	323,696,000
Amt. Paid by UCRBF Power Rev.	11/	963,276,000
By CRDF Contributions and Other	10/ 12/	11,148,000
Ad Valorem Tax Revenue	10/ 13/	159,437,000
Nonreimbursable	14/	498,252,000
Total		$1,989,188,000

AMOUNTS PER ACRE

Irrig. Invest/Acre	$3,971
Repayment of Investment per Acre:	
By Irrigators	66
By UCRBF Power Revenues	3,902
M&I Water Users	
By CRDF & Contrib.	3

Payment Capacity per Acre	$9.46
Annual Charges:	
O&M	8.13
Construction	1.33
Total	$9.46

STATUS OF REPAYMENT CONTRACT: Repayment contract with Central Utah Water Conservancy District executed December 28, 1965, validated February 17, 1966. Amended April 15, 1966. Supplemental Repayment Contract with Central Utah Conservancy District for remainder of municipal and industrial water costs excluding 66 percent of Jordan Aqueduct costs and contracts with Salt Lake County Conservancy District and Metropolitan Water District of Salt Lake City for 66 percent of Jordan Aqueduct costs executed November 26, 1985, validated February 10, 1986.

STATUS OF NEPA COMPLIANCE: 15/ Diamond Fork Power System, final environmental statement filed with Environmental Protection Agency - October 4, 1984; draft supplement to final environmental statement on the Diamond Fork System filed with EPA April 26, 1989. Final supplement scheduled on April 1990. Duchesne River Area Canal System Rehabilitation, a Finding of No Significant Impact was signed on May 21, 1984.

PROJECT DATA SHEET - 2
CENTRAL UTAH PARTICIPATING PROJECT, BONNEVILLE UNIT, UTAH

DESCRIPTION: The Bonneville Unit, which is part of the Central Utah Project, is located in central Utah, the eastern part of the Bonneville Basin, and in the western part of Uinta Basin in Uintah, Duchesne, Wasatch, Summit, Utah, Salt Lake, Juab, Sevier, and Millard Counties, Utah. The unit is multipurpose in scope. It would provide a full water supply for irrigation of 25,290 acres of new land, a supplemental water supply to 221,645 acres of partially irrigated lands, 94,750 acre-feet of water annually for municipal and industrial use, and 18,000 kilowatts of installed capacity for generation of power to be used for irrigation pumping. Benefits of fish and wildlife, recreation, and flood control will also be provided. Crops presently grown are alfalfa and small grains, corn, deciduous fruit and pasture. It is anticipated with project development the same crops will be grown.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1957 and for construction in FY 1966. In the initial planning of the Central Utah Project, irrigation development of 15,242 acres of Indian land was to occur as part of the initial phase of the Central Utah Project in the Uintah Basin. In the Definite Plan Report planning of the Bonneville Unit, Central Utah Project, the Ute Indian Tribe deferred current use of its water for later irrigation development of 15,242 acres of land so that construction of the Bonneville Unit could proceed. The Ute Indian Tribe passed a resolution dated August 18, 1975, urging that development of Indian facilities proceed concurrently with development of non-Indian facilities. In a letter to Congressman McKay, the Secretary of the Interior expressed a desire to meet the request of the Ute Tribe. Negotiations continue with the Ute Indian Tribe as to which developments will be acceptable to them.

Footnotes:

1/ Supplemental water is available to 26,450 acres, and facilities have been completed to provide municipal and industrial water of 18,500 acre-feet annually. Completion of three of the four major components (Collection System, Municipal and Industrial Water System, and the Diamond Fork System) of this project is scheduled in 1995. Completion of the Irrigation and Drainage System is contingent upon timing of and specific provisions included in legislation that may be introduced to increase the appropriation ceiling.

2/ The ratios remained at 1.3 (Direct) and 1.4 (Total) as they were presented in the FY 1990 Budget Justifications. The ratios were computed by using the authorized interest rate of 3.125 percent.

3/ Includes specific fish and wildlife obligations of $133,581,000 and specific recreation obligations of $61,749,000 and $3,243,000 for Big Game Range transfers to the State of Utah, Department of Natural Resources.

4/ Includes net property and other transfers in the Section 5 Program of $2,500,000 and $-3,193,000 in the Fish and Wildlife Program and $50,000 in the Recreation Program.

5/ The $10,000,000 represents advances from the Central Utah Water Conservancy District.

PROJECT DATA SHEET - 3
CENTRAL UTAH PARTICIPATING PROJECT, BONNEVILLE UNIT, UTAH

Footnotes: (continued)

6/ Represents reimbursable interest during construction for municipal and industrial water facilities $81,703,000 and power $5,559,000. The power costs are for facilities previously planned but are not to be built because of insufficient demand for hydroelectric power. The reimbursable interest during construction for municipal and industrial water facilities increased $1,722,000 due to increase in costs allocated to that purpose.

7/ The methodology of cost allocation has not changed. An explanation of the changes in allocations between fiscal year 1990 and fiscal year 1991 is as follows:

Allocation	FY 1990 estimate	FY 1991 estimate
Irrigation	$ 973,308,000	$ 980,439,000
Power	16,949,000	16,979,000
Municipal and Industrial Water	481,125,000	493,318,000
Recreation	62,328,000	61,749,000
Fish and Wildlife	360,013,000	375,281,000
Flood Control	16,504,000	19,342,000
Highway Improvement	38,614,000	41,680,000
Total	$1,948,841,000	$1,989,188,000

Explanation	Amount of Change
Cost indexing - October 1989 to October 1990	+ 7,380,000
Revised estimates due to contract modifications on ongoing contracts and decreased land estimates	- 334.000
Revised work items on recreation facilities and other project features	+ 1,908,000
Revised estimate of highway and powerline relocations costs	+17,917,000
Reevaluation of minor contracts and noncontract costs.	+11,663,000
Increase in interest during construction	+ 1,722,000
Revised requirements for Permanent Operating Facilities.	+ 111,000
Total	$+40,347,000

The allocation to irrigation increased due to revised estimates on current contracts with joint purpose allocation and indexing changes. The allocation to power increased due to update of actual costs. The allocation to municipal and industrial water increased due to revised estimates on twenty contracts, interest during construction, contingencies,

PROJECT DATA SHEET - 4
CENTRAL UTAH PARTICIPATING PROJECT BONNEVILLE UNIT, UTAH

Footnotes: (continued)

noncontract costs and indexing changes. The allocation to recreation decreased due to dropping a feature, and reducing estimates on two contracts; offset by price indexing changes and increased estimates on one contract. The allocation to fish and wildlife increased due to wildlife land requirements, estimates on contracts, and indexing changes. The allocation to flood control increased due to revised contract values and land acquisition changes, minor contracts, and noncontract requirements. The allocation to highway improvements increased due to revised estimates on highway relocation costs.

8/ The current project plan which is the basis for the FY 1991 budget presentation does not include any facilities for commercial power. The allocation to power covers such costs for past investigations of $11,420,000 plus interest during construction on that amount which is $5,559,000. Repayment of these sunk costs will be from Colorado River Storage Project Power Revenues.

The project plan does provide 18 mW of power generation capacity for project pumping needs. The costs of this generation capacity is included in the allocation of irrigation and fish and wildlife.

9/ Includes interest during construction as identified in footnote 6.

10/ Of the amount to be repaid, $465,011,000 is covered by an existing contract with the Central Utah Water Conservancy District for both irrigation and municipal and industrial water, and includes repayment by ad valorem tax revenues and contributions. The balance of $45,670,000 to be repaid for municipal and industrial water is being repaid by contract with the Metropolitan Water Conservancy District of Salt Lake City and Salt Lake County Conservancy District which was signed on May 16, 1986.

11/ From Upper Colorado River Basin Fund revenues apportioned for use in the State of Utah, as generated by CRSP Power Rate (Schedule SP-F1) effective on or after January 23, 1981.

12/ Colorado River Development Fund investigations costs, $881,000; non-federal contributions, $10,117,000; income received from grazing leases on withdrawn lands, $150,000. These costs are assigned $763,000 to irrigation, $10,385,000 to municipal and industrial water.

13/ For municipal and industrial water.

14/ Includes $19,542,000 for flood control, $375,281,000 for fish and wildlife, $61,749,000 for recreation, and $41,680,000 for relocation of highways to higher standards under Public Law 93-251.

Footnotes: (continued)

15/ The final environmental statement for the collection system was filed with the Council on Environmental Quality August 2, 1973. The Municipal and Industrial Water System final environmental statement was filed with the Environmental Protection Agency October 25, 1979.

16/ Appropriations authorized are $2,227,922,000 (October 1990) for the Colorado River Storage Project under Public Law 84-485 and Public Law 92-370. The comparable Federal obligation is estimated to be $2,938,058,918 which would exceed the appropriation ceiling by more than the amount of contingencies included in the obligation. Appropriate Congressional committees have been advised of the appropriation ceiling status of this project. Legislation to provide additional ceiling would be needed to complete the project as authorized. Current commitments will be held within the existing ceiling.

PHYSICAL DATA ON STRUCTURES - 6
CENTRAL UTAH PARTICIPATING PROJECT, BONNEVILLE UNIT, UTAH

CONSTRUCTION PROGRAM:

COLLECTION SYSTEM

Starvation Dam and Reservoir

Dam:
Type - Zoned earthfill
Structural Height - 200 feet
Crest Length - 3,070 feet
Base Width - 855 feet

Spillway:
Type - Bathtub inlet chute
Design Discharge - 14,720 cubic feet per second

Reservoir Capacity:
Total Storage - 167,310 acre-feet

Upper Stillwater Dam and Reservoir

Dam:
Type - Roller compacted concrete
Structural Height - 288 feet
Crest Length - 2,700 feet
Base Width - 177 feet

Spillway:
Type - Uncontrolled Ogee Crest
Design Discharge - 15,000 cubic feet per second

Reservoir Capacity:
Total Storage - 33,123 acre-feet

Currant Creek Dam and Reservoir

Dam:
Type - Zoned earthfill
Structural Height - 177 feet
Crest Length - 1,600 feet
Base Width - 800 feet

Spillway:
Type - Rectangular conduit
Design Discharge - 5,180 cubic feet per second

Reservoir Capacity:
Total Storage - 15,670 acre-feet

Soldier Creek Dam, Strawberry Reservoir Enlargement, and Collection Works

Dam:
Type - Zoned earthfill
Structural Height - 265 feet
Crest Length - 1,290 feet
Base Width - 1,480 feet

Spillway: None

Reservoir Capacity:
Total Storage - 1,106,500 acre-feet

PHYSICAL DATA ON STRUCTURES - 7
CENTRAL UTAH PARTICIPATING PROJECT, BONNEVILLE UNIT, UTAH

Tunnels:	Length (miles)	Diameter size (feet	Capacity (cubic feet per second)
Water Hollow	4.1	10.33	620
Layout	3.3	10.33	620
Currant	1.7	10.33	620
Vat	7.3	8.25	475
Rhodes	0.8	7.75	325
Hades	4.2	7.75	305
Stillwater	8.1	7.50	285
Pipelines:			
West Fork	4.2	6.50	325
North Fork Siphon	0.8	6.00	305
Currant Creek	0.7	11.00	620
Wolf Creek Pipeline	1.0	7.00	325

Diversion Dams and Feeder Conduits: Six Structures - 5.3 miles of feeder conduit.

Rehabilitation of Duchesne River Area Canal System

Length - 40.2 miles

Capacity - Various cubic feet per second

Bottom Width - 2 to 12 feet

Water Depth - 0.96 to 4.7 feet

Taylor Canal Area Drains

Location and length to be determined by subsequent investigation.

MUNICIPAL AND INDUSTRIAL WATER SYSTEM

Jordanelle Dam

Dam:

Type - Zoned earthfill
Structural Height - 295 feet
Crest Length - 3,500 feet

Base Width - 1,675 feet

Spillway:

Type - Glory Hole
Design Discharge - 4,040 cubic feet per second

Reservoir Capacity:

Total Storage - 320,000 acre-feet

PHYSICAL DATA ON STRUCTURES - 8
CENTRAL UTAH PARTICIPATING PROJECT, BONNEVILLE UNIT, UTAH

Indian Ford Pumping Plant

Four Units - 100 cubic feet per second total capacity   250 feet vertical head

Jordan Aqueduct System

Tunnels:	Length (miles)	Diameter size (feet)	Capacity (cubic feet per second)
Alpine Aqueduct - Reach 1	0.4	7.5	450
Pipelines:			
Jordan Aqueduct - Reaches 1 and 2	15.0	6.5	270
Jordan Aqueduct - Reach 3	5.7	5.5	80
Jordan Aqueduct - Reach 4	16.9	6.0	270
Alpine Aqueduct - Reach 1	0.5	7.5	450
Alpine Aqueduct - Reach 2	4.7	3.5	85
Alpine Aqueduct - Reach 3	11.2	5.5	80

DIAMOND FORK SYSTEM 1/

Dams:	Spillways:	Reservoir Capacities:
Monks Hollow Dam:		
Type - Concrete Arch	Type - Overflow	Total Storage - 34,500 acre-feet
Structural Height - 255 feet	Design Discharge - 12,373 cubic feet per second	
Crest Length - 950 feet		
Base Width - 58 feet		

Pipeline:

Upper Diamond Fork:
Length - 6.9 miles   Diameter - 8.0 feet   Capacity - 510 cubic feet per second

Rays Valley Pipeline:
Length - 0.9 miles   Diameter - 7.0 feet   Capacity - 600 cubic feet per second

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1/ The Lower Diamond Fork Pipeline was determined to be a feature of the Irrigation and Drainage System and was renamed Spanish Fork Pipeline.

Tunnels:

Syar Tunnel:
Length - 5.7 miles Diameter - 8.5 feet Capacity - 600 cubic feet per second

Sixth Water Tunnel: 1/
Length - 0.64 miles Diameter - 8.5 feet Capacity - 600 cubic feet per second

Powerplants:

Last Chance - One Generating Unit - 18.0 megawatts Generating Head - 1,540 feet

Penstocks:

Sixth Water Shaft: 1/
Length - 0.1 miles Diameter - 8.5 feet Capacity - 600 cubic feet per second

Switchyards:

Last Chance Substation
four 13.8 kV/138 kV single-phase transformers

IRRIGATION AND DRAINAGE SYSTEM

Mona Dam and Reservoir - Acquire storage capacity

Mona-Nephi Pumping Plants, Canal, and Laterals

Pumping Plants:

Mona - Six Units - 175 cubic feet per second total capacity - 224-249 feet vertical head
Nephi - Five Units - 150 cubic feet per second total capacity - 130-155 feet vertical head

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1/ The Fifth Water Aqueduct System has been changed to the Sixth Water Aqueduct System.

PHYSICAL DATA ON STRUCTURES - 10
CENTRAL UTAH PARTICIPATING PROJECT, BONNEVILLE UNIT, UTAH

Canal:
Length - 14.9 miles   Capacity - 225 cubic feet per second (in season)
(150 cubic feet per second)(in winter)

Pipeline:
Length - 4.4 miles   Capacity - 150 cubic feet per second   Diameter - 6.5 feet

West Mona Pumping Plant and Development

Pipeline:
Length - 3.3 miles   Capacity - 40 cubic feet per second   Diameter - 3.3 feet

Pumping Plants:
West Mona - Two Units - 40 cubic feet per second total capacity - 135 feet vertical head

Mosida Pumping Plants, Canals, and Laterals

Pumping Plants:
Lower - Six Units - Capacity - 150 cubic feet per second   98-108 foot vertical head
Upper - Four Units - Capacity - 90 cubic feet per second   253 foot vertical head
Mosida North - Two Units - Capacity - 35 cubic feet per second   160 foot vertical head

Canal:
Length - 20.7 miles   Capacity - 150 to 35 cubic feet per second

Wasatch Aqueduct

Tunnels:	Length (miles)	Diameter size (feet horseshoe)	Capacity (cubic feet per second)
No. 1 Tithing Mountain	0.5	7.5	180
No. 2 Loafer Mountain	4.1	7.5	180
No 3 Dry Mountain	1.6	7.5	180

Pipelines:
Salem Bench   Length - 4.1 miles   Diameter - 6.5 feet   Capacity - 180 cubic feet per second
Santaquin   Length - 7.1 miles   Diameter - 6.5 feet   Capacity - 180 cubic feet per second
Peteetneet Creek Siphon   Length - 0.3 miles   Diameter - 6.5 feet   Capacity - 180 cubic feet per second
Spanish Fork 1/   Length - 3.3 miles   Diameter - 5.0 feet   Capacity - 175 cubit feet per second

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1/ Spanish Fork Pipeline is new designation for Lower Diamond Fork Pipeline - Diamond Fork System in FY 1990 Budget Justification.

Beer Creek Development
Channel:
Length - 3.0 miles

Elberta Canal and Laterals
Canal:
Length - 10.8 miles Capacity - 115 to 25 cubic feet per second

Pipelines:
Length - 2.1 miles Capacity - 115 cubic feet per second

Nephi-Sevier Canal
Canal:
Length - 22.2 miles Capacity - 150 to 90 cubic feet per second

Discharge Line:
Length - 2.1 miles Capacity - 150 cubic feet per second Diameter - 5.0 feet

System Drains
Location and length to be determined by subsequent investigation.

Land and Rights 1/

Quantity - 19,678 acres
Total Estimated Cost - $51,190,620
- $16,854,000 for 58,000 acre-feet of water rights on Utah Lake
Cost per acre - $2,601
Cost per acre-foot - $291
Acquisition - 41 percent complete as of September 30, 1989
Water Rights - 0 percent complete as of September 30, 1989

Relocations

Total Estimated Cost - $141,977,000 2/
Percent Complete - 78 percent as of September 30, 1989

1/ Land and rights costs increased due to additional cost of Olmstead Powerplant condemnation offset by land index decreases.

2/ The overall increase in costs was due to increased costs on road relocations around Jordanelle Reservoir +15,700,000, increased powerline costs by UP&L +2,066,000 and increased campground relocation $+121,000 and increase in gasoline pipeline relocation $307,000.

PHYSICAL DATA ON STRUCTURES - 12
CENTRAL UTAH PARTICIPATING PROJECT, BONNEVILLE UNIT, UTAH

Items	Length (Miles)	Total cost	Estimated Costs to September 30, 1989
U.S. Highways	19.2	$109,239,000	$80,377,000
Utah State and County Highways	49.7	24,711,000	24,711,000
Forest Service Roads and Trails & Campgrounds	12.3	4,128,000	4,128,000
Various Electric, Telephone, Utilities, and Cemeteries	30.2	3,899,000	1,959,000
TOTAL		$141,977,000	$111,175,000

Appropriation Title: Construction Program
Upper Colorado River Basin Fund

CENTRAL UTAH PARTICIPATING PROJECT
BONNEVILLE UNIT, UTAH - 13

FISCAL YEAR 1991

Work Proposed

	Program
Collection System	$ 1,600,000
Currant Creek Dam and Reservoir. - Maintenance of Forest Service Road will continue.	(158,000)
Soldier Creek Dam, Strawberry Reservoir Enlargement, and Collection Works. - Operation and maintenance of collection system will continue.	(546,000)
Taylor Canal Area Drains. - Groundwater monitoring will continue. Construction and installation of drains will continue.	(896,000)
Municipal and Industrial Water System	58,701,000
Jordanelle Dam. - Land acquisition for the dam and reservoir and removal of tailings will be completed. Construction for Stage II of the dam will continue. Work on relocating Highways 40 and 189 will continue. Preconstruction activities will continue on Jordanelle Reservoir clearing.	(56,602,000)
Upper Provo River Improvements. - Preconstruction activities will continue.	(85,000)
Indian Ford Pumping Plant. - A contract will be awarded for the pumps.	(1,929,000)
Jordan Aqueduct System. - Minor work will be completed on the Aqueduct System along with monitoring of the entire system.	(85,000)

Appropriation Title: Construction Program
Upper Colorado River Basin Fund

CENTRAL UTAH PARTICIPATING PROJECT
BONNEVILLE UNIT, UTAH - 14

Work Proposed	Program
Diamond Fork Power System	$21,422,000
Monks Hollow Dam and Reservoir. - Preconstruction activities for the dam will continue.	(810,000)
Upper Diamond Fork Pipeline. - Preconstruction activities for the Diamond Fork Pipeline and land will be acquired.	(1,927,000)
Syar Tunnel. - Work will continue on the Syar tunnel.	(14,814,000)
Sixth Water Aqueduct. - Work will continue on the construction of an access road to the aqueduct. A contract for the sixth water tunnel and aqueduct will be awarded.	(3,371,000)
Last Chance Powerplant. - Preconstruction activities will continue.	(500,000)
Permanent Operating Facilities. - Purchase of operating equipment will continue.	10,000
Service Facilities, Depreciation, and Salvage. - Provides for acquisition of ADP equipment and heavy work equipment partially offset by depreciation charged to permanent features of the project.	40,000
TOTAL	$ 81,773,000

CUP, BONNEVILLE UNIT (CRSPP)
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 3C 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1 * CONSTRUCTION PROGRAM						
2 ** COMPLETED WORK						
3		1,543,674	1,543,674			
4 ** COLLECTION SYSTEM						
5 *** STARVATION DAM AND RESERVOIR						
6		21,374,554	21,374,554			
7 *** UPPER STILLWATER DAM AND RES						
8		180,450,000	176,659,773	3,790,227		
9 *** CURRANT CREEK DAM AND RESER						
10		32,052,000	29,285,268	422,403	158,000	2,186,329
11 *** SOLDIER CRK DAM/COLLECT SYS						
12		306,550,000	304,013,602	910,398	546,000	1,080,000
13 *** REHAB DUCHESNE RVR AREA CNL						
14		37,926,000	34,643,389	3,282,611		
15 *** TAYLOR CANAL AREA DRAINS						
16		3,611,446	1,520,409	902,000	896,000	293,037
17 ** COLLECTION SYSTEM		581,964,000	567,496,995	9,307,639	1,600,000	3,559,366
18 ** MUNICIPAL AND INDUSTRIAL SYS						
19 *** JORDANELLE DAM AND RESERVOIR						
20		383,849,000	168,869,342	90,809,659	56,602,000	67,567,999
21 *** UPPER PROVO RIVER IMPROVENTS						
22		7,538,000	114,498	80,000	85,000	7,258,502
23 *** INDIAN FORD PUMPING PLANT						
24		5,844,000	29,793	233,000	1,929,000	3,652,207
25 *** JORDAN AND ALPINE AQUEDUCTS						
26		88,637,000	87,080,827	871,173	85,000	600,000
27 ** MUNICIPAL AND INDUSTRIAL SYS		485,868,000	256,094,460	91,993,832	58,701,000	79,078,708
28 ** DIAMOND FORK SYSTEM						
29 *** MONKS HOLLOW DAM AND RESERV						
30		62,265,000	6,546,576	1,160,000	810,000	53,748,424
31 *** DIAMOND FORK UPPER PIPELINE						
32		54,473,000	1,622,798	1,910,000	5,574,000	45,366,202

CUP, BONNEVILLE UNIT (CRSPP)
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

	PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1	*** SYAR TUNNEL						
2			64,984,000	24,894,472	15,812,528	11,167,000	13,110,000
3	*** SIXTH WATER AQUEDUCT						
4			53,648,000	6,691,239	3,290,247	3,371,000	40,295,514
5	*** LAST CHANCE POWERPLT/SWTCHYD						
6			18,979,000	218,598	600,000	500,000	17,660,402
7	** DIAMOND FORK SYSTEM		254,349,000	39,973,683	22,772,775	21,422,000	170,180,542
8	** IRRIGATION AND DRAINAGE SYS						
9	*** MONA DAM AND RESERVOIR						
10			3,944,000	833,162			3,110,838
11	*** MONA-NEPHI PUMPPLTS/CNL/LATS						
12			75,538,000	2,484,745			73,053,255
13	*** WEST MONA PUMP PLANT/DEVELPMT						
14			9,091,000	10,232			9,080,768
15	*** MOSIDA PUMP PLTS/CANALS/LATS						
16			54,241,000	879,580			53,361,420
17	*** WASATCH AQUEDUCT AND LATERALS						
18			140,990,000	9,149,605			131,840,395
19	*** BEER CREEK CHANNEL/LATERALS						
20			970,000	190,775-			1,160,775
21	*** ELBERTA CANAL AND LATERALS						
22			17,619,000	283,997			17,335,003
23	*** NEPHI-SEVIER CANAL						
24			26,902,000	909,245			25,992,755
25	*** SYSTEM DRAINS						
26			14,729,000	237,993			14,491,007
27	** IRRIGATION AND DRAINAGE SYS		344,024,000	14,597,784			329,426,216
28	** PERMANENT OPERATING FACILITIES						
29			688,925	18,948	5,000	10,000	654,977
30	** OPERATION/MAINTENANCE HOUSING						
31			1,075	1,075			
32	** SERVICE FACILITIES/DEPRE/SALVG						
33			1,543,674-	12,367,087	251,000	40,000	14,201,761-

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CUP, BONNEVILLE UNIT (CRSPP)
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PAGE 3

	PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1	* CONSTRUCTION PROGRAM		1,666,895,000	892,093,706	124,330,246	81,773,000	568,698,048
2	* OTHER PROJECT COSTS						
3			39,601,000	21,510,681	1,000,262		17,090,057
4	TOTAL PROGRAM COST		1,706,496,000	913,604,387	125,330,508	81,773,000	585,788,105
5	OTHER CONSOL. EXPEND & CREDIT		2,500,000-	1,386,133			3,886,133-
6	TOTAL EXPENDITURES		1,703,996,000	914,990,520	125,330,508	81,773,000	581,901,972
7	NONFEDERAL CASH CONTRIBUTIONS		10,928,928-	10,928,928-			
8	TOTAL FEDERAL EXPENDITURES		1,693,067,072	904,061,592	125,330,508	81,773,000	581,901,972
9	TOTAL RECLAMATION EXPENDITURES		1,693,067,072	904,061,592	125,330,508	81,773,000	581,901,972
10	UNDELIVERED ORDERS			17,918,508	17,918,508-		
11	TOTAL RECLAMATION OBLIGATIONS		1,693,067,072	921,980,100	107,412,000	81,773,000	581,901,972
12	TOTAL FUNDED OBLIGATIONS		1,693,067,072	921,980,100	107,412,000	81,773,000	581,901,972
13	METHOD OF FINANCING						
14	APPLICATION OF PRIOR YEAR FUND				8,658,000		
15	APPROPRIATION AVAILABLE & REQD				98,754,000	81,773,000	581,901,972

Appropriation Title: Construction Program
Upper Colorado River Basin Fund

DRAINAGE AND MINOR CONSTRUCTION PROGRAM

Summarized Financial Data:

Fiscal Year 1990:		
Appropriation (Reflects P. L. 99-177 reduction of - $6,000)	$371,000	
Application of Prior Year Funds	400,000	
Total Obligations, FY 1990		$771,000
Fiscal Year 1991:		
Estimate of Appropriation	$775,000	
Total Obligations, FY 1991		$775,000

Description: The drainage and minor construction category includes units and participating projects of the Colorado River Storage Project on which major construction has been completed, except for facilities temporarily deferred or for which relatively small amounts of funds are being requested in the budget year for drainage construction, minor repair or replacement work, miscellaneous finishing activities, or preconstruction work on the temporarily deferred facilities.

The program involves work on two participating projects.

FISCAL YEAR 1991

Work Proposed	Program
Participating Projects	
Central Utah Participating Project	
Jensen Unit, Utah. - Provides for monitoring of Red Fleet Dam and Reservoir and Tyzack Pumping Plant and minor corrective work.	$ 30,000
Dallas Creek Project. - Filling of the reservoir will continue, minor contracts will be awarded to repair construction deficiencies, and an emergency warning system will be installed.	745,000
TOTAL	$ 775,000

RECREATIONAL AND FISH AND WILDLIFE

COLORADO RIVER STORAGE PROJECT
RECREATIONAL AND FISH AND WILDLIFE FACILITIES

General Statement

Summarized Financial Data:

Fiscal Year 1990:		
Appropriation:		
Recreational Facilities (Reflects P. L. 99-177 reduction of - $267,000) . . .	$ 8,645,000	
Fish and Wildlife Facilities (Reflects P. L. 99-177 reduction of - $128,000) . .	21,871,000	
Application of Prior Year Funds:		
Recreational Facilities	$ 34,000	
Fish and Wildlife Facilities	2,998,000	
Total Obligations, FY 1990		$33,548,000
Fiscal Year 1991:		
Estimate of Appropriation:		
Recreational Facilities	$11,836,000	
Fish and Wildlife Facilities	15,132,000	
Total Obligations, FY 1991		$26,968,000

Section 8 of the Colorado River Storage Act, enacted April 11, 1956, authorized and directed the Secretary to investigate, plan, construct, operate, and maintain (1) public recreational facilities on lands withdrawn or acquired for the development of the Colorado River Storage Project, or participating projects, to conserve the scenery; the natural, historic, and archeological objects; and the wildlife on said lands and to provide for the public use and enjoyment of the same and of the water areas created by these projects by such means as are consistent with the primary purposes of said projects and (2) facilities to mitigate losses of, and improve conditions for, the propagation of fish and wildlife.

The Bureau of Reclamation has authority for continuing work on most recreational and fish and wildlife facilities of the storage project. Development and construction of recreational areas having national significance are the responsibility of the National Park Service except Flaming Gorge Reservoir which is the responsibility of the Forest Service. Fish hatcheries and wildlife refuges are a responsibility of the Fish and Wildlife Service. Funds for the development of these areas are provided by the Bureau of Reclamation until they are designated by the Congress as National Recreation Areas or National Wildlife Refuges.

RECREATIONAL AND FISH AND WILDLIFE FACILITIES

General Statement - 2

The total appropriation request of $25,288,000 provides for continuation of work on five projects. The investment through September 30, 1989, at public use areas created by the Colorado River Storage Project Act totaled $171.0 million. In 1988, about 3 million fish were produced by the two fish hatcheries constructed as a part of the project. There were 6.5 million visitations at the 20 completed Colorado River Storage Project reservoirs during the 1988 recreation season.

Details of the FY 1991 program are included on the pages which follow.

Appropriation Title: Construction Program

RECREATIONAL AND FISH AND WILDLIFE FACILITIES, ARIZONA, COLORADO, NEW MEXICO, UTAH, AND WYOMING - 3

FISCAL YEAR 1991

Work Proposed	Program
Central Utah Project, Bonneville Unit, Utah	
Recreational Facilities - A contract will be awarded for the Jordanelle Recreational Area. Land Acquisition will be completed for Jordanelle Reservoir Recreation Area. Work will continue at Rabbit Gulch Campground. Preconstruction activities will continue at other recreation areas.	$6,459,000
Fish and Wildlife Facilities - Work will be completed on the Diamond Fork Wildlife land improvements. Contracts will be awarded for Ute Waterfowl Development and Fencing Jordanelle Wildlife. Work will continue on Instream Improvements for the Collection System, aquatic mitigation for the Strawberry Exchange, and the development of wildlife habitat at Starvation Reservoir. Land acquisition will be completed for Jordanelle Wildlife Area.	10,529,000
Dallas Creek Project, Colorado	
Recreational Facilities - Construction of Ridgway Reservoir Recreation Facilities will be continued.	5,110,000
Dolores Project, Colorado	
Recreational Facilities - The contracts to construct the Dolores River Access Facilities Number 1 and 2 will continue.	267,000
Fish and Wildlife - Preconstruction activities for Dawson Draw Dam will continue. The acquisition of Dawson Draw Dam land will be completed.	1,099,000

Appropriation Title: Construction Program

RECREATIONAL AND FISH AND WILDLIFE FACILITIES, ARIZONA, COLORADO, NEW MEXICO, UTAH, AND WYOMING - 4

FISCAL YEAR 1991

Work Proposed	Program
Seedskadee Project, Wyoming	
Fish and Wildlife Facilities - Development of the National Wildlife Refuge and land acquisition continues.	2,932,000
Wayne N. Aspinall Unit, Colorado	
Fish and Wildlife Facilities - A contract for the Big Game Range Development will complete. Land acquisition will be initiated for Fishery Mitigation.	572,000
TOTAL	$26,968,000

Appropriation Title: Construction Program

RECREATIONAL AND FISH AND WILDLIFE FACILITIES, ARIZONA, COLORADO, NEW MEXICO, UTAH, AND WYOMING - 5

FISCAL YEAR 1991

Explanation of Change in Total Obligations:

1990 Justification.	$431,176,436
1991 Justification.	441,330,246
Increase	$+10,153,810

Explanation of changes	Amount of Change
Animas-La Plata Project - Increase is due to indexing.	+100,000
Bonneville Unit - Increase is due to indexing +2,828,829; new work items +888,000; new contract estimates +190.000 offset by dropping a recreation feature -1,162,000; finalizing recreational facilities for Forest Service Plan -335,829; and reduction of land appraisal values -501,000.	+1,908,000
Dallas Creek Project - Increase is due to agreement with State of Colorado to construct facilities to State minimum standards so they will assume operation of facilities.	+8,365,310
Dolores Project - Increase is due to claim settlement on Housecreek Road +102,000 and new estimate for river access facilities and wildlife mitigation facilities +230,351.	+332,000
Seedskadee Project - Decrease is due to cost indexing of land partially offset by increase in estimated development costs.	-598,000
Other Units and Projects - Adjustment is estimated cost of Upalco Unit.	+46,500
Increase	$10,153,810

CRSP, FISH/WILDLIFE (SEC 8)
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

	PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1	ANIMAS-LA PLATA PROJ (CRSPP)		4,700,000				4,700,000
2	CRSP-ENDANGRD SPCES F WL SEC 8		10,000,000	1,000,000			9,000,000
3	CUP, BONNEVILLE UNIT (CRSPP)		133,581,000	13,475,795	4,966,000	10,529,000	104,610,205
4	CUP, JENSEN UNIT (CRSPP)		49,387	49,387			
5	CUP, UINTAH UNIT (CRSPP)		218,000				218,000
6	CUP, UPALCO UNIT (CRSPP)		2,997,000	15,194			2,981,806
7	CUP, VERNAL UNIT (CRSPP)		16,198	16,198			
8	DALLAS CREEK PROJECT (CRSPP)		2,336,087	2,089,087	247,000		
9	DOLORES PROJECT (CRSPP)		12,115,000	3,863,545	257,000	1,099,000	6,895,455
10	EMERY COUNTY PROJECT (CRSPP)		1,031,589	1,031,589			
11	FLAMING GORGE UNIT, CRSP		10,879,282	10,879,282			
12	FRUITLAND MESA PROJECT (CRSPP)		9,448,000				9,448,000
13	GLEN CANYON UNIT, CRSP		497,932	497,932			
14	HAMMOND PROJECT (CRSPP)		5,800	5,800			
15	LYMAN PROJECT (CRSPP)		2,014,786	961,786			1,053,000
16	NATIONAL FISH HATCHERIES, CRSP		16,544,200	7,129,200			9,415,000
17	NAVAJO UNIT, CRSP		809,016	809,016			
18	PAONIA PROJECT (CRSPP)		10,000	10,000			
19	SAN MIGUEL PROJECT (CRSPP)		971,000				971,000
20	SAVERY-POT HOOK PROJ (CRSPP)		5,625,000				5,625,000
21	SEEDSKADEE PROJECT (CRSPP)		18,296,523	7,557,201	3,755,000	2,932,000	4,052,322
22	STRAWBERRY VALLEY PROJECT		18,000,000		15,000,000		3,000,000
23	WAYNE N. ASPINALL UNIT, CRSP		6,800,455	5,388,530	644,000	572,000	195,925
24	WEST DIVIDE PROJECT (CRSPP)		5,493,000				5,493,000
25	SUBTOTAL		262,439,285	54,779,542	24,869,000	15,132,000	167,658,713

MA40

CRSP, FISH/WILDLIFE (SEC 8)
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1 TOTAL OBLIGATIONS		262,439,255	54,779,542	24,869,000	15,132,000	167,658,713
2 METHOD OF FINANCING						
3 APPLICATION OF PRIOR YEAR FUNDS				2,998,000		
4 APPROPRIATION AVAILABLE & REQD				21,871,000	15,132,000	167,658,713

CRSP, RECREATION (SEC 8)
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

	PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1	ANIMAS-LA PLATA PROJ (CRSPP)		7,100,000				7,100,000
2	BOSTWICK PARK PROJECT (CRSPP)		1,156,097	1,156,097			
3	CUP, BONNEVILLE UNIT (CRSPP)		61,749,000	30,521,973	5,165,000	6,459,000	19,603,027
4	CUP, JENSEN UNIT (CRSPP)		1,921,869	1,921,869			
5	CUP, UINTAH UNIT (CRSPP)		3,236,000				3,236,000
6	CUP, UPALCO UNIT (CRSPP)		3,586,000				3,586,000
7	CUP, VERNAL UNIT (CRSPP)		110,495	110,495			
8	DALLAS CREEK PROJECT (CRSPP)		34,395,719	22,599,023	2,792,000	5,110,000	3,894,696
9	DOLORES PROJECT (CRSPP)		15,888,000	14,753,387	722,000	267,000	145,613
10	EMERY COUNTY PROJECT (CRSPP)		74,933	74,933			
11	FLAMING GORGE UNIT, CRSP		4,557,361	4,557,361			
12	FLORIDA PROJECT (CRSPP)		103,032	103,032			
13	FRUITLAND MESA PROJECT (CRSPP)		2,295,000				2,295,000
14	GLEN CANYON UNIT, CRSP		9,466,844	9,466,844			
15	LYMAN PROJECT (CRSPP)		1,336,608	1,336,608			
16	NAVAJO UNIT, CRSP		4,957,529	4,957,529			
17	PAONIA PROJECT (CRSPP)		94,707	94,707			
18	SAN MIGUEL PROJECT (CRSPP)		563,000				563,000
19	SAVERY-POT HOOK PROJ (CRSPP)		666,000				666,000
20	SEEDSKADEE PROJECT (CRSPP)		636,378	636,378			
21	SILT PROJECT (CRSPP)		60,027	60,027			
22	SMITH FORK PROJECT (CRSPP)		104,207	104,207			
23	WAYNE N. ASPINALL UNIT, CRSP		23,775,185	23,775,185			
24	WEST DIVIDE PROJECT (CRSPP)		692,000				692,000
25	SUBTOTAL		178,525,991	116,229,655	8,679,000	11,836,000	41,781,336

CRSP, RECREATION (SEC 8)
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1 TOTAL OBLIGATIONS		178,525,991	116,229,655	8,679,000	11,836,000	41,781,336
2 METHOD OF FINANCING						
3 APPLICATION OF PRIOR YEAR FUNDS				34,000		
4 APPROPRIATION AVAILABLE & REQD				8,645,000	11,836,000	41,781,336

COLORADO RIVER BASIN

730

REGION:
Lower Colorado

PROJECT DATA SHEET

PROJECT AND STATE:	Completion Date	% Complete	Date
CENTRAL ARIZONA PROJECT, ARIZONA-CALIFORNIA-NEW MEXICO-NEVADA-UTAH	1/	71 1/	1/31/90
AUTHORIZATION: Public Law 90-537, September 30, 1968; Public Law 97-373, December 20, 1982; and Public Law 95-578, November 2, 1978, as amended by Public Law 98-404, August 28, 1985	BENEFIT COST RATIOS		
	Based on Direct Benefits	Based on Total Benefits	Date
LAND CERTIFICATION: April 16,1973: DEFINITE PLAN REPORT: Supp. scheduled as required 2/ : To be completed as required	1.7	2.0 3/	10/1/90

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 20/	$3,307,784,000	Allotments to September 30, 1989	$2,240,069,636
Total Federal Obligations (Other)		Allotments for FY 1990	214,694,000
Net Property and Other Transfers:			
Federal Participation 4/	4,428,000		
Non-Federal Participation 5/	345,568,000	Allotments to Date	2,454,763,636
Adjustment 6/	221,713,000	Allotments Required for FY 1991	198,466,000
Total to be Allocated	$3,879,493,000	Balance to Complete after FY 1991	$634,554,364

ALLOCATIONS 7/		REPAYMENT		AMOUNTS PER ACRE			
Irrigation 8/	$1,427,739,000	Amount Repaid by:		Irrig. Invest/Acre	$1,432	Payment Capacity 18/	
Power	513,914,000	Irrigators 13/	$ 68,301,000	Repayment of Investment per Acre:		per acre feet	$69.00
M&I Water	960,770,000	Power 13/	805,876,000			Annual Charges:	
Recreation	157,725,000	M&I Water 13/	550,067,000	By Irrigators	69	O&M	66.00
F&WL	0	Ad Valorem 13/	711,245,000	By Power Revenues)		Construction	2.00
Flood Control 9/	139,503,000	Other 14/	342,723,000	By M&I Water Users)	898		
Safety of Dams 10/	84,700,000	Non-Federal Con. 15/	383,329,000				
Non-Ind. System 11/	374,890,000	Deferred/Leavitt 16/	463,778,000	Indian Irrigation	465		
Other 12/	220,232,000	Nonreimbursable 17/	554,174,000				
Total	$3,879,493,000	Total	$3,879,493,000				$68.00

STATUS OF REPAYMENT CONTRACT: Repayment contract with Central Arizona Water Conservation District was executed on December 15, 1972, and validated on May 24, 1983. An amended contract with the District was executed on December 1, 1988, and validation is scheduled for June 1990. Construction of the Non-Indian Distribution System will be accomplished under Section 9(d), Reclamation Act of 1939. Repayment contracts will be executed with each district prior to construction of the individual systems. Eleven of these repayment contracts have been executed and validated. Repayment contracts for the remainder of the Districts will be executed as the distribution system reports are completed.

STATUS OF NEPA COMPLIANCE: 19/ San Xavier District - Papago Reservation - Final environmental statement filed November 2, 1989. The NEPA compliance schedules for Middle and Upper Gila River Divisions and Indian Distribution Division NEPA Compliance will be determined as planning progresses.

PROJECT DATA SHEET - 2
COLORADO RIVER BASIN PROJECT
CENTRAL ARIZONA PROJECT, ARIZONA-CALIFORNIA-NEW MEXICO-NEVADA-UTAH

Analysis of Costs		Allotments	*LCRBDF	**Non-Indian	***Safety of Dams
Federal Obligations:					
LCRBDF 19/	$2,938,252,000	Almts to 9/30/89	$2,002,542,045	$223,858,134	$13,669,457
Non-Indian Distrib System	297,637,000	Almts for FY 1990	186,834,000	14,210,000	13,650,000
Safety of Dams	71,895,000	Almts to Date	$2,189,376,045	$238,068,134	$27,319,457
Net Prop & Other Transfers:					
Federal Participation	4,428,000				
Non-Federal Participation	345,568,000	Almts Req FY 1991	182,268,000	1,996,000	14,202,000
Adjustments	221,713,000				
Total to be Allocated	$3,879,493,000	BTC After FY 1991	$ 366,607,955	$ 57,572,866	$30,373,543

* Represents total Federal obligations financed under authority of section 309(a), Public Law 90-537, Colorado River Basin Project Act.

** Represents total Federal obligations financed under authority of section 309(b), Public Law 90-537, Colorado River Basin Project Act, as amended by Public Law 97-373.

*** Represents total Federal obligations financed under authority of Public Law 95-578, Safety of Reclamation Dams Act, as amended by Public Law 98-404.

DESCRIPTION: The Central Arizona Project is located in Maricopa, Pima, Cochise, La Paz, Yavapai, and Pinal Counties of Arizona; San Bernardino County, California; Grant County, New Mexico; Clark County, Nevada; and Kane and Washington Counties, Utah. The Navajo Power Project is located in Coconino County, Arizona. The transmission lines of the project are located in Coconino, Mohave, Yavapai, and Maricopa Counties, Arizona; Kane and Washington Counties, Utah; Clark County, Nevada; and San Bernardino County, California. The project is multipurpose in scope. It will provide a supplemental water supply to 996,955 acres of partially irrigated lands and 640,000 acre-feet of water annually for municipal and industrial use (maximum municipal and industrial use in the year 2034). Benefits to recreation and flood and sediment control will be provided. In addition, a power entitlement of 546,750 kilowatts is available to the project through terms of the Navajo Project Participation Agreement. The Non-Indian Distribution Systems are located in Maricopa, Pinal, Pima, and Yavapai Counties, Arizona; and Grant County, New Mexico.

OTHER INFORMATION: Funds to initiate preconstruction planning on the Central Arizona Project were appropriated in FY 1970 and other construction began in FY 1971. Funds were also appropriated in FY 1970 to cover the initial liquidation of the contract authority for the Navajo Project Participation Agreement power development features. Funds to initiate preconstruction planning on the Non-Indian Distribution Systems were appropriated in FY 1982, and construction began in FY 1984. Funds to initiate preconstruction work on Safety of Dams at Roosevelt Dam were appropriated in FY 1986 and construction began in FY 1987.

The final notice of allocation of project water for Indian irrigation use was published in the Federal Register on October 18, 1976. Legal proceedings were initiated by the Gila River Indian Community on January 4, 1977, opposing the Secretary's October 18, 1976, Indian Water Allocation. This suit is currently inactive. On December 1, 1980, the Secretary announced a modified allocation and raised the Indians in priority for receiving water. The modified allocation increased the amount of project water previously allocated Indian irrigation to 309,828 acre-feet and provided that during water shortage years the Indian tribes' irrigation allocation will be reduced 10 percent and any remaining shortage will be shared on a pro rata basis by the Indian and municipal and industrial water users. The allocation also would allow municipal and industrial water users to substitute other water in exchange for a portion of the Indians' Central Arizona Project water allocation. Contracts with 11 Indian communities and 10 tribes have been executed. The Gila River Indian Community contract has not been signed; however, negotiations are continuing. The negotiations revolve around the issues of effluent exchanges and the reimbursability of OM&R charges. The Secretary approved the allocation of project water to Non-Indian irrigation users and municipal and industrial users on February 10, 1983.

The Audubon Society and others filed their lawsuit against Plan 6 of the Central Arizona Project on September 19, 1985. The lawsuit was dismissed without prejudice on September 21, 1988, after the Secretary of the Interior amended the Record of Decision to delete Cliff Dam from Plan 6.

The repayment contract with the Central Arizona Water Conservation District was validated on May 24, 1983. An amendatory contract with the District has been renegotiated. The amended contract was executed on December 1, 1988, and the District is scheduled to file their validation petition in January 1990. Court validation of the amended contract is expected by June 1990. On March 23, 1989, Central Arizona, Maricopa-Stanfield and New Magma Irrigation and Drainage Districts, who are subcontractors, filed suit against the Secretary of the Interior challenging portions of the amended repayment contract that allow the use by municipal and industrial users of Central Arizona Project water for ground water recharge, the priority of this use over agriculture, and treating project water used for electrical power, mining and recreation as municipal and industrial water. The Districts also seek a declaratory judgment that provisions of the National Environmental Policy Act and the public participation provisions of the Reclamation Reform Act apply to contracts executed under the Colorado River Basin Project Act. The United States was granted a change of venue from Washington, D.C. to Phoenix, Arizona. A hearing date has not been set on this suit.

The water service subcontract form was approved by the Secretary in July 1983 and by the District in November 1983. Ten of 23 non-Indian irrigation allottees have signed subcontracts. This represents 71 percent of the non-Indian irrigation water. Fifty-three of the 72 municipal and industrial allottees have signed subcontracts. These subcontracts represent 79 percent of the municipal and industrial water allocation. The remaining water service subcontracts should be executed by 1991.

The Non-Indian Distribution System repayment contracts will be executed and validated as the distribution system plans are approved. The repayment contracts for Maricopa-Stanfield Irrigation and Drainage District, Central Arizona Irrigation and Drainage District, and New Magma Irrigation and Drainage District were executed on November 21, 1983, and validated on November 23, 1983. The Harquahala Valley Irrigation District Contract was executed January 6, 1984, and April 26, 1984; Chaparral City Water Company contract was executed December 6, 1984, and validated on March 25, 1985; HoHoKam Irrigation and Drainage District was executed on April 4, 1985, and validated August 13, 1985; Tonopah Irrigation District was executed April 8, 1985, and validated July 24, 1985; Queen Creek, Chandler Heights Citrus, and San Tan Irrigation Districts were executed December 30, 1985, and validated February 14, 1986. The repayment contract for the City of Prescott is scheduled for execution May 1992, validation July 1992. The delay in the execution of the repayment contract was caused by the continuing study on the Verde River water exchanges.

As originally authorized, the Regulatory Storage Division included Orme Dam and Reservoir, to be located at the confluence of the Salt and Verde Rivers upstream of Phoenix, Arizona. The primary objective of Orme Dam was to regulate Central Arizona Project water deliveries. In 1977, during a Presidential review of water projects, Orme Dam was recommended for deletion from the project. In 1978 a study of alternatives to Orme Dam was initiated. While this study was evaluating alternatives for regulatory storage and flood control on the Salt and Verde Rivers, the Bureau was also evaluating existing dams on the Salt and Verde Rivers under the Safety of Dams Act (Public Law 95-578). The two studies were combined because both were looking at modification of existing dams. The plan (commonly known as Plan 6), which was approved by the Secretary in April 1984, included New Waddell Dam on the Agua Fria River for regulatory storage purposes and Cliff Dam on the Verde River and Modified Roosevelt Dam on the Salt River for water conservation, flood control, and safety of dams purposes.

In June 1987, the Arizona congressional delegation (Delegation), the Secretary, and the National Coalition to Stop Cliff Dam (Coalition) agreed to a statement of principles that dropped Cliff Dam from Plan 6. The seven principles included the following: (1) No further funds will be appropriated for the study or construction of Cliff Dam. Plan 6 without Cliff Dam is deemed a "suitable alternative" to Orme Dam within the meaning of the Colorado River Basin Project Act of 1968; (2) the organization comprising the Coalition agreed to not oppose funding for the completion of the remaining features of Plan 6; (3) the Coalition agreed to terminate its lawsuit against Cliff Dam and Plan 6 without prejudice, upon agreement by the Secretary to modify his decisions of April 3, 1984, and May 20, 1986, to remove Cliff Dam from the approved plan; (4) the Delegation agreed, upon termination of the lawsuit, to declare its intention not to pursue any future funding for Cliff Dam or similar water conservation storage feature on the Verde River; (5) the Coalition agreed to support appropriation of funding for safety-related improvements at Horseshoe, Bartlett, Modified Roosevelt, and Modified Stewart Mountain Dams; (6) the parties agreed to ask the Corps of Engineers to undertake studies to determine and identify appropriate flood control solutions on the Verde River; and (7) the Delegation and the Secretary have committed themselves to ensuring that Valley cities will secure water supplies necessary to replace the water yield that otherwise would have been provided by Cliff Dam.

PROJECT DATA SHEET - 5
COLORADO RIVER BASIN PROJECT
CENTRAL ARIZONA PROJECT, ARIZONA-CALIFORNIA-NEW MEXICO-NEVADA-UTAH

As a result of this agreement, Cliff Dam has been deleted from the Central Arizona Project program. Programs for Horseshoe and Bartlett Dams have been added to the Safety of Dams Act Program. Studies to identify appropriate flood control solutions on the Verde River and replacement of the cities' water supplies are included in the funding for the Regulatory Storage Division. The study for replacement of the cities' water supplies will be completed in April 1990. The cities' final decision to accept or reject Reclamtion's proposal for replacement of their Cliff Dam water supply is expected in June 1990. The flood control study was completed in December 1989 resulting in the deletion of flood control alternatives on the Verde River.

Federal and State officials executed an agreement on local funding for Plan 6 on April 15, 1986. The proposal requires non-Federal parties to contribute funds of approximately $267 million (October 1990 Dollars) available to the United States to expedite the construction of Plan 6 and to ensure the timely completion of all Central Arizona Project features. This funding excludes approximately $23 million of Safety of Dams funding for work at Stewart Mountain, Horseshoe, and Bartlett Dams. The entities contributing funds under the agreement include: Central Arizona Water Conservation District; Maricopa County Flood Control District; Salt River Project Agricultural Improvement and Power District and Salt River Valley Water Users' Association; and the cities of Chandler, Glendale, Mesa, Phoenix, Scottsdale, and Tempe. Local funds first became available pursuant to the proposal in August 1986. All non-Federal parties are continuing on schedule to contribute their funds. The funding agreement was amended in October 1987, to reflect the deletion of Cliff Dam from Plan 6. The funding agreement will be amended in fiscal year 1990 to reflect the cities' decisions on the proposal to replace their Cliff Dam water supply, the deletion of Verde River flood control, and the changes in the Safety of Dams program on the Verde River dams.

Footnotes:

1/ The Central Arizona Project (Water and Power Development), Safety of Dams portion of Roosevelt Dam, and the Non-Indian Distribution Systems are included in the percent complete shown in this submission. The Central Arizona Project completion percentage includes expenditures under the obligation established for liquidation of contract authority on the Navajo Project Participation Agreement. Initial operation of Navajo Project was May 31, 1974. Initial operation of the last (third) generating unit began April 30, 1976. Initial water via the Hayden-Rhodes (formerly Granite Reef) aqueduct was delivered to the Phoenix metropolitan area in 1985 as scheduled. Initial water delivery was made to users of the Salt-Gila Aqueduct and to users in Pinal County in 1986. Initial water delivery to the Ak-Chin Indian Community was made in June 1987, 6 months earlier than the January 1988 deadline contained in the Ak-Chin Water Rights Settlement Act. Water deliveries to northern Pima County were made in 1989 and are scheduled for the Tucson area in 1991.

Water delivery to the central Arizona Indian communities is scheduled as follows:

San Xavier and Schuk Toak Districts of the Tohono O'Odham Nation, not later than October 1992 and the Salt River Pima Maricopa Indian Community in 1992. The delivery date for San Xavier and Schuk Toak Districts of the Tohono O'Odham Nation was established by the Southern Arizona Water Rights Settlement Act. Firm water delivery dates to the

PROJECT DATA SHEET - 6
COLORADO RIVER BASIN PROJECT
CENTRAL ARIZONA PROJECT, ARIZONA-CALIFORNIA-NEW MEXICO-NEVADA-UTAH

Footnotes: (continued)

remaining Indian reservations, Chui Chu Papago Indian Community, Gila River, Fort McDowell, San Carlos-Apache, Yavapai-Prescott, Pascua Yaqui, Camp Verde, and Tonto Apache Indian Reservations will be determined upon approval of water settlement legislation or when Reclamation and the Indian Communities have completed acceptable plans.

Water deliveries to the Non-Indian Distribution Systems were made to Harquahala Valley and Tonopah Irrigation Districts and Chaparral City Water Company in 1986; New Magma Irrigation and Drainage District and portions of the Central Arizona and Maricopa-Stanfield Irrigation and Drainage Districts in 1987; and a portion of water was delivered to HoHoKam, Queen Creek, San Tan and Chandler Heights Citrus Irrigation and Drainage Districts in 1988. Ultimate water delivery to other Non-Indian Distribution Systems are scheduled as follows: Queen Creek, San Tan, and Chandler Heights Citrus Irrigation District in 1989; Maricopa-Stanfield, Central Arizona, and HoHoKam Irrigation and Drainage Districts in 1990; and City of Prescott in 1995. The schedule for delivery to the remaining systems will be determined as planning is completed. The delay of two years for delivery of water to the City of Prescott is caused by the continuing study of the Verde River water exchanges.

2/ A supplemental land certification for the Ak-Chin Indian Reservation was completed April 19, 1982. Supplemental land certification for the Salt River Indian Reservation was completed on December 9, 1982. Chui Chu/Papago Indian Reservation was completed March 23, 1983. Tucson Division will be certified by June 1990. The delay was caused by the additional lands to be certified. Land certifications for the following Indian Reservations are scheduled as follows: San Xavier and Schuk Toak Districts of the Tohono O'Odham Nation, February 1990; Gila River Reservation, March 1992; and Fort McDowell Indian Reservation, August 1990. Certification for the San Xavier and Schuk Toak Districts was delayed seven months to perform additional drainage studies. Certifications for the Fort McDowell and Gila River Reservations were delayed to complete additional planning studies to determine the actual irrigation plan. Land certifications for other Indian reservations will be scheduled as required.

3/ The ratios were computed by using the authorized interest rate of 3.25 percent.

4/ Includes $3,328,000 for Central Arizona Project, $1,000,000 for the Non-Indian Distribution Systems and $100,000 for Safety of Dams at Roosevelt Dam.

5/ Includes $685,000 advanced by the State of Arizona for advance planning work, $300,000 contributed by the State of New Mexico for drilling at Conner damsite, $700,000 provided by Salt River Project for Roosevelt Dam powerplant, $862,000 provided by Maricopa County for Castle Hot Springs Road, $76,253,000 for non-cash contributions provided by the repayment entities for the Non-Indian Distribution Systems, and $266,768,000 (includes $20,693 non-cash) contributions provided on modified Plan 6 by local entities.

6/ Represents interest during construction which increased $34,339,000 from that shown in the FY 1990 Budget Justifications due to a lengthened construction period for the interest-bearing portions of the project.

PROJECT DATA SHEET - 7
COLORADO RIVER BASIN PROJECT
CENTRAL ARIZONA PROJECT, ARIZONA-CALIFORNIA-NEW MEXICO-NEVADA-UTAH

Footnotes: (continued)

Includes reimbursable interest during construction of $84,843,000 for commercial power, $135,205,000 for municipal and industrial water, and $1,665,000 for recreation.

7/ The methodology of cost allocation has not been modified. An explanation of the changes in allocations between FY 1990 and FY 1991 is as follows:

Allocation	FY 1990 Estimate	FY 1991 Estimate
Irrigation	$1,405,140,000	$1,427,759,000
Power	478,695,000	513,914,000
Municipal and Industrial Water	906,787,000	960,770,000
Recreation	168,567,000	157,725,000
Fish and Wildlife	0	0
Flood Control	365,303,000	139,503,000
Safety of Dams	102,353,000	84,700,000
Non-Indian Distribution Systems	376,475,000	374,890,000
Other	216,282,000	220,232,000
Total	$4,019,602,000	$3,879,493,000

Explanation	Amount of Change
Central Arizona Project--Water Development:	
Interest During Construction	$ +34,359,000
Indexing	+27,874,000
Revised estimates on Regulatory Storage and Hayden-Rhodes, Salt-Gila, and Tucson Aqueducts	+19,784,000
Design Changes	+23,212,000
Contract Modifications	+2,324,000
Deleted Verde River Flood Control Alternatives	-197,780,000
Deleted Contracts	-18,960,000
Bids Lower than Estimates	-11,106,000
Completed Contracts	-230,000
Miscellaneous	-348,000
Subtotal	$- 120,871,000

PROJECT DATA SHEET - 8
COLORADO RIVER BASIN PROJECT
CENTRAL ARIZONA PROJECT, ARIZONA-CALIFORNIA-NEW MEXICO-NEVADA-UTAH

Footnotes: (continued)

Explanation	Amount of Change
Non-Indian Distribution Systems:	
Revised Estimates for Current Project Conditions	-1,576,000
Completed Contracts	-9,000
Subtotal	$ -1,585,000
Safety of Dams--Roosevelt:	
Reallocation of Joint Costs at Modified Roosevelt Dam	-17,653,000
Total	$-140,109,000

The allocations for FY 1991 have been revised to incorporate changes. The following is a summary of impacts on individual allocations:

Irrigation increased $22,619,000 due to the assignment of additional joint project costs to this allocation.

Power increased $35,219,000 due to the assignment of additional interest during construction and revisions in costs and indexing.

Municipal and Industrial Water increased $53,983,000 due to the assignment of additional interest during construction and additional remaining joint costs to this allocation.

Recreation decreased $10,842,000 due to deletion of Verde River alternatives from the project.

Fish and Wildlife did not change.

Flood Control decreased $225,800,000 due to the elimination of flood control on the Verde River and the reduction in flood control benefits on the Salt and Verde River Systems.

Safety of Dams decreased $17,653,000 due to a reduction in joint costs at Modified Roosevelt Dam assigned to this function.

Non-Indian Distribution Systems decreased $1,585,000 due to revisions in costs to reflect current cost estimates and completed contracts.

Other increased $3,950,000 due to revised cost estimates and indexing.

PROJECT DATA SHEET - 9
COLORADO RIVER BASIN PROJECT
CENTRAL ARIZONA PROJECT, ARIZONA-CALIFORNIA-NEW MEXICO-NEVADA-UTAH

Footnotes: (continued)

8/ Includes $463,778,000 for costs allocated to Indian irrigation which is deferred under the Leavitt Act and $963,981,000 which is allocated to non-Indian irrigation and is reimbursable.

9/ During the flood control studies that will be made public in January 1990, a flood occurred that hydraulically excavated the Salt and Verde River channels whereby the system is now capable of carrying a 100-year flood, and the Corps of Engineers significantly reduced the flood control benefits resulting in a substantial reduction in the flood control allocation.

10/ Allocation of Safety of Dams cost to the various functions as required by the Public Laws 95-578 and 98-404, Safety of Dams Acts, is not necessary. In accordance with the local funding agreement for the Plan 6 features of the Central Arizona Project, the Salt River Project will provide funding for its share of the agreement, which is 15 percent of the costs associated with Safety of Dams.

11/ Includes all costs associated with the Non-Indian Distribution Systems. These costs are not allocated as part of the Central Arizona Project allocation procedure but are assigned directly to the district constructing and repaying these facilities.

12/ Includes nonreimbursable costs of $181,392,000 for the Indian Distribution Division, $900,000 for the Colorado River Division, $1,700,000 for the New Mexico Fish Hatchery associated with Hooker Dam or suitable alternative, $32,730,000 for cultural resources, $963,000 for contributed preauthorization investigation costs, $300,000 from the State of New Mexico, $685,000 from the State of Arizona, $862,000 from Maricopa County, Arizona, and $700,000 from Salt River Project.

13/ Of the amount scheduled to be repaid, $2,013,489,000 is covered by an existing contract with the Central Arizona Water Conservation District and $122,000,000 under the Navajo Layoff Contracts.

14/ Consists of reimbursable costs to be repaid by entities other than the Central Arizona Water Conservation District and Navajo Project layoff contractors. Upper Gila River Division, $32,277,000; recreation, $11,809,000; Non-Indian Distribution Systems, $298,637,000. Ten repayment contracts have been executed and validated for the Non-Indian Distribution Systems. The remainder of the Non-Indian Distribution System contracts will be executed and validated as the distribution system reports are completed. Repayment contracts for the Upper Gila River Division and recreation will be executed as required.

Footnotes: (continued)

15/ Amount of allocated costs which have been contributed by Arizona, $685,000; New Mexico, $300,000; the Non-Indian Distribution Systems entities, $76,253,000; Salt River Project for Roosevelt Dam Powerplant, $700,000; Maricopa County for Castle Hot Springs Road, $862,000; and Plan 6 entities, $304,529,000 (contributed by Central Arizona Water Conservation District, $175,000,000; Arizona cities, $58,138,000; Salt River Project for Safety of Dams at Roosevelt Dam, $12,705,000; Maricopa County Flood Control District, $20,925,000; and interest during construction credit for interest bearing functions of the contributions; $37,761,000).

16/ Amount for costs allocated to Indian irrigation required to develop Indian lands using Central Arizona Project water. The Leavitt Act permits repayment to be deferred as long as the land is in Indian ownership.

17/ The nonreimbursable costs include Safety of Dams, $71,995,000; Colorado River Division, $900,000; Indian Distribution Division, $181,392,000; New Mexico Fish Hatchery, $1,700,000; recreation, $145,916,000; flood control, $118,578,000; cultural resources, $32,730,000; and contributed investigation costs, $963,000.

18/ The payment capacity per acre-foot is based on the most recent Central Arizona Project Payment Capacity Studies.

19/ Projectwide - Final filed September 26, 1972. Havasu Intake Channel, Havasu Pumping Plant, and Buckskin Mountains Tunnel - Final filed January 15, 1973. Granite Reef Aqueduct - Final filed January 22, 1974. Hayden-Rhodes Aqueduct portion of Transmission System - Final filed August 4, 1975. Salt-Gila Aqueduct - Final filed November 13, 1979. Allocation of Central Arizona Project water for Indian Irrigation Use - Negative Determination of Environmental Impact - June 10, 1976. Allocation of Central Arizona Project for Indian Use - Finding of No Significant Impact - October 15, 1980. Water Allocations and Water Service Contracts - Final filed March 19, 1982. Indian Distribution Division - Multiple-User Delivery Facilities - Finding of No Significant Impact - August 10, 1984. Tucson Aqueduct Phase A - Final filed July 15, 1982. Regulatory Storage Division - Final filed February 10, 1984. Tucson Aqueduct Phase B - Final filed August 14, 1985.

20/ Appropriations authorized for Central Arizona Project by section 309(a) of Public Law 90-537 are $3,098,424,000 (October 1990). Appropriations for Non-Indian Distribution Systems authorized by section 309(b) of Public Laws 90-537 and 97-373 are $338,008,000 (October 1990). These authorizations are adequate to cover this project as currently proposed. Appropriations for the Safety of Dams Act portions of Roosevelt Dam are authorized by Public Law 95-578 and Public Law 98-404. Total Federal obligations are estimated to be $71,995,000 (October 1990 prices) for Safety of Dams work. The present authorized ceiling for Safety of Dams is adequate to cover this work as presently planned.

PHYSICAL DATA ON STRUCTURES - 11
COLORADO RIVER BASIN PROJECT
CENTRAL ARIZONA PROJECT, ARIZONA-CALIFORNIA-NEW MEXICO-NEVADA-UTAH

CONSTRUCTION PROGRAM

WATER DEVELOPMENT

Hayden-Rhodes Division

Hayden-Rhodes Aqueduct

Length - 177.1 miles Capacity - 3,000 cubic feet per second Bottom width - 24.0 feet Water Depth - 16.4 feet

Pumping Plants:	Capacity (cubic feet per second)	Head (feet)
Havasu	3,000	316
Bouse Hills	3,000	102
Little Harquahala	3,000	108
Hassayampa	3,000	186

Tunnels:	Length (miles)	Diameter size (feet)	Capacity (cubic feet per second)
Buckskin Mountains	6.83	22.0 (Circular-precast)	3,000
Burnt Mountain	0.55	19.5 (Horseshoe)	3,000
Agua Fria	0.73	19.5 (Horseshoe)	3,000
Siphons:			
Cunningham Wash	0.72	21	3,000
Centennial Wash	1.09	21	3,000
Jackrabbit Wash	0.31	21	3,000
Hassayampa River	0.73	21	3,000
New River	1.09	21	3,000
Agua Fria River	1.89	21	3,000
Salt River	1.62	21	3,000

PHYSICAL DATA ON STRUCTURES - 12
COLORADO RIVER BASIN PROJECT
CENTRAL ARIZONA PROJECT, ARIZONA-CALIFORNIA-NEW MEXICO-NEVADA-UTAH

Regulatory Storage Division

New Waddell Dam and Reservoir

Dam:
Type - Thin core rockfill
Structural Height - 440 feet
Crest Length - 4,900 feet
Base Width - 1,600 feet

Spillway:
Type - Ungated free overflow
Design Discharge - 328,000 cubic per second

Reservoir Capacity:
Total Storage - 892,000 acre-feet

Waddell Canal:
Length - 4.5 miles
Capacity - 3,000 cubic feet per second
Bottom width - 24 feet
Water depth - 16.4 feet

Pump - Generation Plant:
Pumping capacity - 3,000 cubic feet per second
Generating Capacity - 35 Megawatts
Head - 183 feet

Roosevelt Dam and Reservoir (As modified)

Dam:
Type - Masonry, thick arch
Structural Height - 330 feet
Crest Length - 1,180 feet
Base Width - 160 feet

Spillway:
Type - Submerged orifice
Design Discharge - 114,000 cubic feet per second

Reservoir Capacity
Total Storage - 2,166,000 acre-feet

Powerplant:
Generating capacity - 36 Megawatts

Verde River Alternatives

Alternatives for the Verde River water supply replacement for the valley cities are currently being investigated.1/

1/ During the flood control studies that will be made public in January 1990, a flood occurred that hydraulically excavated the Salt and Verde River channels whereby the system is now capable of carrying a 100-year flood, and the Corps of Engineers significantly reduced the flood control benefits resulting in a substantial reduction in the flood control allocation.

PHYSICAL DATA ON STRUCTURES - 13
COLORADO RIVER BASIN PROJECT
CENTRAL ARIZONA PROJECT, ARIZONA-CALIFORNIA-NEW MEXICO-NEVADA-UTAH

Salt-Gila Division

Salt-Gila Aqueduct - Reaches No. 1 through 4

Length - 59.0 miles

Capacity - 2,750 to 2,250 cubic feet per second

Bottom Width - 24.0 to 22.0 feet

Water Depth - 15.6 to 14.5 feet

Pumping Plants:	Capacity (cubic feet per second)	Head (feet)
Salt-Gila	2,750	84

Siphons:	Length (mile)	Diameter size (feet)	Capacity (cubic feet per second)
Gila River	0.6	19	2,400

Middle Gila River Division

Buttes Dam and Reservoir

Dam:
Type - Earthfill
Height - 210 feet
Crest Length - 950 feet
Base Width - 1,309 feet

Spillway:
Type - Ogee
Design Discharge - 251,000 cubic feet per second

Reservoir Capacity
Total Storage - 366,000 Structural acre-feet

Buttes Supply Canal

Length - 3.5 miles

Capacity - 1,200 cubic feet per second

Bottom width - 8.0 feet

Water depth - 7.8 feet

PHYSICAL DATA ON STRUCTURES - 14
COLORADO RIVER BASIN PROJECT
CENTRAL ARIZONA PROJECT, ARIZONA-CALIFORNIA-NEW MEXICO-NEVADA-UTAH

Upper Gila River Division

Planning for alternative water supplies has been suspended until economic conditions permit a feasible plan.

Tucson Division

Terminal Storage

Terminal storage alternatives for Tucson Aqueduct are being studied.

Tucson Aqueduct

Length - 62.2 miles of open canal   Capacity - 2,250 to 750 cubic feet per second   Bottom Width - 20.0 to 7.5 feet   Water Depth - 14.2 to 15.4 feet
Length - 6.9 miles of discharge line   Capacity - 750 to 200 cubic feet per second   Pipe Diameter - 96 to 72 inches
Length - 19.3 miles of siphon
Length - 1.4 miles of pipeline

Pumping Plants	Capacity (cubic feet per second)	Head (feet)
Brady	1,200	148
Picacho	900	232
Red Rock	750	232
Twin Peaks	650	84
Sandario	575	86
Brawley	550	229
San Xavier	550	182
Snyder Hill	350	297
Black Mountain	200	405

PHYSICAL DATA ON STRUCTURES - 15
COLORADO RIVER BASIN PROJECT
CENTRAL ARIZONA PROJECT, ARIZONA-CALIFORNIA-NEW MEXICO-NEVADA-UTAH

Transmission Facilities

256.5 miles of 230-kV line and associated switchyards and substations
121.0 miles of 115-kV line and associated switchyards and substations
6.5 miles of 69-kv line and associated switchyards

Indian Distribution Division

Facilities required to distribute water to the Central Arizona Indian communities. Physical data will be provided as planning progresses and when planning reports are approved.

Salt River Indian Reservation

Length - 6.0 miles of pipeline   Capacity - 85 to 10 cubic feet per second   Pipe Diameter - 42 to 24 inches

Ak-Chin Indian Reservation

Laterals - open
Length - 15.8 miles   Capacity - 74 to 15 cubic feet per second

San Xavier-Papago Reservation

Main Canal
Length - 6.4 miles   Capacity - 200 cubic feet per second   Bottom Width - 2.0 to 4.0 feet   Water Depth - 5.0 to 2.4 feet

Main Pipeline
Length - 1.3 miles   Capacity - 46 to 17 cubic feet per second

Laterals - pipelines
Length - 16.0 miles   Capacity - 42 to 7 cubic feet per second

Indian Distribution Division (continued)

Schuk Toak-Papago Reservation

Delivery Pipeline Length - 7.4 miles	Capacity - 52 cubic feet per second	Diameter 48 inches
Laterals - open Length - 4.5 miles	Capacity - 14 cubic feet per second	

Drainage System

Drains required for the service area.

POWER DEVELOPMENT

Navajo Project Participation Agreement

Federal entitlement to 546,730 kilowatts of power from the Navajo Generating Station located at Page, Arizona.

PHYSICAL DATA ON STRUCTURES - 17
COLORADO RIVER BASIN PROJECT
CENTRAL ARIZONA PROJECT, ARIZONA-CALIFORNIA-NEW MEXICO-NEVADA-UTAH

NON-INDIAN DISTRIBUTION SYSTEM

Harquahala Valley Irrigation District

Link Canal
Length - 3.9 miles Capacity - 400 cubic feet per second

Westside Canal
Length - 19.0 miles Capacity - 200 to 45 cubic feet per second

Harquahala Valley Road Canal
Length - 10.0 miles Capacity - 200 to 100 cubic feet per second

Buckeye-Salome Road Canal
Length - 7.7 miles Capacity - 100 to 50 cubic feet per second

Westside Laterals
Length - 35.5 miles Capacity - 100 to 5 cubic feet per second

Eastside Laterals
Length - 18.0 miles Capacity - 30 to 5 cubic feet per second

Tonopah Irrigation District

Main Canal and Laterals
Length - 10.7 miles Capacity - 75 to 10 cubic feet per second

Queen Creek, Chandler Heights Citrus, and San Tan Irrigation Districts

Canal and Laterals - Pipe
Length - 50 miles Capacity - 250 to 7 cubic feet per second Diameter - 78 to 12 inches

PHYSICAL DATA ON STRUCTURES - 18
COLORADO RIVER BASIN PROJECT
CENTRAL ARIZONA PROJECT, ARIZONA-CALIFORNIA-NEW MEXICO-NEVADA-UTAH

New Magma Irrigation and Drainage District

Lateral Systems - Open

Length - 79.3 miles
Capacity - 170 to 15 cubic feet per second

Lateral Systems - Pipelines

Length - 5.5 miles
Capacity - 69 to 15 cubic feet per second
Diameter - 48 to 18 inches

Pumping Plants

Quantity - 11
Capacity - 69 to 5 cubic feet per second
Head - 90 to 10 feet

Hohokam Irrigation and Drainage District

Hohokam Main Canal

Length - 17.8 miles
Capacity - 225 to 50 cubic feet per second

Siphons

Length - 6.2 miles
Capacity - 225 to 15 cubic feet per second
Diameter - 36 to 24 inches

Lateral Systems - Open

Length - 80 miles
Capacity - 45 to 10 cubic feet per second

Santa Rosa Canal (Serves Maricopa-Stanfield and Central Arizona Irrigation Districts and the Ak Chin and Chui Chu-Papago Indian Communities)

Length - 55.0 miles
Capacity - 1,377 to 300 cubic feet per second

Maricopa-Stanfield Irrigation and Drainage District

East Main Canal

Length - 19.7 miles
Capacity - 900 to 300 cubic feet per second

Lateral Distribution Systems

Length - 131 miles
Capacity - 200 to 15 cubic feet per second

Pumping Plants		
Quantity - 23	Capacity - 15 cubic feet per second	Head - 78 to 8 feet
Pipelines		
Length - 0.7 miles	Capacity - 15 cubic feet per second	Diameter - 24 inches

Central Arizona Irrigation and Drainage District

Central Main Canal		
Length - 28 miles	Capacity - 900 to 50 cubic feet per second	
South Main Canal		
Length - 14 miles	Capacity - 300 to 50 cubic feet per second	
Lateral Distribution Systems		
Open Laterals		
Length - 133 miles	Capacity - 300 to 15 cubic feet per second	
Pipelines		
Length - 7.0 miles	Capacity - 45 to 15 cubic feet per second	Diameter - 39 to 24 inches
Pumping Plants		
Quantity - 8	Capacity - 45 to 15 cubic feet per second	Head - 45 to 8 feet

San Carlos Irrigation and Drainage District

Rehabilitation Work

Florence Canal	
Length - 16.0 miles	Capacity - 90 to 13 cubic feet per second
Casa Grande Canal	
Length - 22.0 miles	Capacity - 400 to 25 cubic feet per second
Laterals	
Length - 141.0 miles	Capacity - 90 to 15 cubic feet per second

PHYSICAL DATA ON STRUCTURES - 20
COLORADO RIVER BASIN PROJECT
CENTRAL ARIZONA PROJECT, ARIZONA-CALIFORNIA-NEW MEXICO-NEVADA-UTAH

New Canal Work

Florence-Casa Grande Canal to Casa Grande Canal Link

Length - 1.7 miles   Capacity - 400 cubic feet per second

Chaparral City Water Company

Pipeline

Length - 4.5 miles   Capacity - 20 cubic feet per second   Diameter - 24 inches

Pumping Plant

Quantity - 1   Capacity - 20 cubic feet per second   Head - 440 feet

Raw Water Reservoir   Capacity - 3.5 million gallons

City of Prescott

Pipeline

Length - 11.6 miles   Capacity - 12 cubic feet per second   Diameter - 30 inches

Pumping Plants

Quantity - 2   Capacity - 12 cubic feet per second   Head - 216 and 40 feet

Physical data for other districts will be included as planning reports are approved. The physical data for Non-Indian Distribution Systems will continue to change as plans are approved and specifications prepared.

LAND AND RIGHTS - WATER DEVELOPMENT

Quantity - 80,000 acres
Total Estimated Cost - $115,774,000
Cost Per Acre - $1,448
Acquisition - 81 percent complete as of September 30, 1989

PHYSICAL DATA ON STRUCTURES - 21
COLORADO RIVER BASIN PROJECT
CENTRAL ARIZONA PROJECT, ARIZONA-CALIFORNIA-NEW MEXICO-NEVADA-UTAH

LAND AND RIGHTS - NON-INDIAN DISTRIBUTION SYSTEMS

Quantity - 9,502 acres
Total Estimated Cost - $22,339,000
Cost Per Acre - $2,351
Acquisition 94 percent complete as of September 30, 1989

RELOCATIONS - WATER DEVELOPMENT

Total Estimated Cost - $173,716,000
Percent Complete - 53 percent as of September 30, 1989

Items:	Total Cost	Cost to September 30, 1989
Arizona State Highway No. 88 (including bridge) - Roosevelt Dam	$ 29,596,000	$ 20,614,710
Apache Trail and Powerhouse Service Road - Roosevelt Dam	5,148,000	2,995,000
Lake Estates - Roosevelt Dam	8,264,000	1,901,114
Salt River Project Power Lines - Roosevelt Dam	2,134,000	12,943
Recreation Facilities - Roosevelt Dam	5,965,836	288,943
Castle Hot Springs Road - New Waddell Dam	9,610,668	9,610,668
Recreation Facilities - New Waddell Dam	15,377,000	0
Camp Dyer Diversion Dam - New Waddell Dam	2,634,000	0
Southern Pacific Railroad - Buttes Dam and Reservoir	39,918,000	0
Various electric, telephone, and other utilities	6,100,000	4,100,891
Various farm and county roads and bridges	39,790,000	36,900,112
Various State and Federal highways	15,900,164	13,910,631
Various railroad crossings	2,889,000	1,800,450
TOTAL	$183,326,668	$92,135,462

CENTRAL ARIZONA PROJECT, ARIZONA-CALIFORNIA-NEW MEXICO-NEVADA-UTAH - 22

FISCAL YEAR 1991

Work Proposed	Program
WATER DEVELOPMENT	
Hayden-Rhodes Division - Preconstruction work for the reach 11 dike repair will continue. Modification of the Salt River siphon scour structure will be initiated. Corrosion control and maintenance along the aqueduct system, monitoring of fish and wildlife mitigation facilities and development of recreational facilities along reach 11 will continue. Contract for floor covering at Havasu Pumping Plant will be initiated and completed.	$ 5,320,000
Regulatory Storage Division - New awards for Waddell Dam will include the west abutment grouting phase 2, construction of service facilities, installation of the supervisory control system, placement of wildlife protective fencing and fish barriers. Relocation of the Maricopa County recreation maintenance yard, county roads and Maricopa Water District facilities will begin. At Roosevelt Dam, contracts will be awarded for Roosevelt Dam modifications, powerhouse turbine replacement, visitor center-museum-administrative building, reservoir basin clearing, community development archeological study, stock watering tanks, cattle fencing, goose refuge and design of the State Route 88 slope protection. Relocation of the Lake Estates, a sewage treatment plant, Forest Service workcenter stage 2, and sheriff station will begin.	177,258,000

Work will be completed at New Waddell Dam on the Dam Stage I construction, pumping-generating plant structure, the Camp Dyer Diversion Dam Modifications, the westwing substation, west abutment grouting phase 1, power and control cables, relocation of the county recreation center and recreation facilities powerline. Completed work at Roosevelt Dam includes the lake tap and tunnel, jet valves, the Forest Service workcenter stage 1, State Route 88 relocation and paving, plus various transmission line relocations. The Roosevelt flood operation and flood control reports will be completed along with mitigation contracts for cultural resources and seeding of the mud flats.

Construction underway at New Waddell Dam includes stage II, the pumping-generating plant switchyard, the pumping-generating plant completion contract, and the westwing transmission line and wildlife water catchments. Major acquisitions in progress includes stage II borrow materials, flowmeters and the pumping-generating plant pumps and motors. Acquisition of land and rights will

Appropriation Title: Construction Program
Colorado River Basin Project
Lower Colorado River Basin Development Fund

CENTRAL ARIZONA PROJECT, ARIZONA-CALIFORNIA-NEW MEXICO-NEVADA-UTAH - 23

FISCAL YEAR 1991

Work Proposed (Continued)
Program

Regulatory Storage Division (continued) - continue. Work will continue on various cultural and environmental mitigation contracts common to all the Regulatory Storage features. The major construction underway at Roosevelt Dam consists of the recreation replacement and enhancement facilities, and water catchments. The agreements with the Forest Service for liaison and archeology coordination will continue. On-going mitigation work includes the historical architectural studies of the Salt River Project Dams, cultural surveys at the recreation areas, the agricultural and the major village archeological sites. Preconstruction activities for future contracts will continue on all Regulatory Storage features.	
Salt-Gila Division - Maintenance of the aqueduct system and post construction environmental monitoring activities will continue.	148,000
Middle Gila River Division - Preconstruction activities will continue.	70,000
Upper Gila River Division - Preconstruction activities and related environmental studies will continue.	15,000
Tucson Division - A contract will be awarded for a fire alarm system at Brady, Picacho, and Red Rock Pumping Plants. Construction of Snyder Hill and Black Mountain Pumping Plants, maintenance of the aqueduct system, wildlife monitoring, and corrosion control along the aqueduct system will continue. Construction of Brawley and San Xavier Pumping Plants, Snyder Hill and Black Mountain Pumping Plants; Black Mountain pipeline and operating reservoir; reach 6 pipeline phases A, B and C; and power and control cables for reaches 4-6 will be completed.	36,651,000
Transmission Facilities - Contracts will be completed for the Del Bac transmission line and the Del Bac substation (formerly Black Mountain-Los Reales).	2,900,000
Indian Distribution Division. - Construction will continue on the Salt River Reservation, San Xavier and Schuk Toak new farms systems. Preconstruction studies will continue.	15,154,000
Drainage System. - Continuation of preconstruction studies on the distribution systems.	10,000

Appropriation Title: Construction Program
Colorado River Basin Project
Lower Colorado River Basin Development Fund

CENTRAL ARIZONA PROJECT, ARIZONA-CALIFORNIA-NEW MEXICO-NEVADA-UTAH - 24

FISCAL YEAR 1991

Work Proposed (continued)	Program
Permanent Operating Facilities. - Construction of the projectwide microwave system will be completed. Purchase of permanent maintenance equipment will continue.	1,893,000
Service Facilities, Depreciation, and Salvage. - Provides for purchase of work and office equipment and specialized heavy duty field equipment, which is partially offset by depreciation charged to project features on a use basis.	1,374,000
Other Project Costs. - Construction will be completed on the archeological repository building. Work on the cultural resource curation contract; service subcontracts and water re-allocations will continue.	4,153,000
SUBTOTAL - WATER DEVELOPMENT	245,348,000
POWER DEVELOPMENT	
Navajo Project Participation Agreement. - Provides the Government's share of the capital additions and betterment program for the Navajo Generating Station and associated transmission system.	1,000,000
Non-Federal Cash Participation. - For water and power development activities.	-64,080,000
TOTAL - LOWER COLORADO RIVER BASIN FUND	182,268,000
NON-INDIAN DISTRIBUTION SYSTEMS	
Non-Indian Distribution Systems. - Work will be completed on HoHoKam, Queen Creek, San Tan, and and Chandler Heights Citrus Irrigation and Drainage Districts and Santa Rosa Canal. Pre-construction activities on other distribution systems will continue.	2,732,109
Non-Federal Noncash Participation.	-736,109
SUBTOTAL - NON-INDIAN DISTRIBUTION SYSTEMS	1,996,000

Appropriation Title: Construction Program
Colorado River Basin Project
Lower Colorado River Basin Development Fund

CENTRAL ARIZONA PROJECT, ARIZONA-CALIFORNIA-NEW MEXICO-NEVADA-UTAH - 25

FISCAL YEAR 1991

Work Proposed	Program
SAFETY OF DAMS DIVISION	
Safety of Dams Division. - Preconstruction and construction activities will continue on Modified Roosevelt Dam.	16,317,000
Non-Federal Cash Participation.	-2,115,000
SUBTOTAL - SAFETY OF DAMS DIVISION	14,202,000
TOTAL	$198,466,000

CENTRAL ARIZONA PROJECT
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

	PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1	* CONSTRUCTION PROGRAM-WATER						
2	** COMPLETED WORK						
3			901,000	900,277			723
4	** HAYDEN-RHODES DIVISION						
5			786,616,000	771,743,889	2,757,903	5,520,000	6,594,208
6	** REGULATORY STORAGE DIVISION						
7			827,019,000	271,069,522	108,442,802	177,258,000	270,248,676
8	** SALT-GILA DIVISION						
9			202,450,000	201,421,411	739,589	148,000	141,000
10	** MIDDLE GILA RIVER DIVISION						
11			157,556,000	3,366,526	57,000	70,000	154,062,474
12	** UPPER GILA RIVER DIVISION						
13			81,588,000	6,696,305	18,000	15,000	74,858,695
14	** TUCSON DIVISION						
15			538,208,000	415,830,240	76,899,412	36,651,000	8,827,348
16	** TRANSMISSION FACILITIES						
17			87,424,000	78,781,378	5,742,622	2,900,000	
18	** INDIAN DISTRIBUTION DIVISION						
19			181,392,000	43,035,825	14,517,000	15,154,000	108,685,175
20	** DRAINAGE SYSTEM						
21			37,117,000	787,374	10,000	10,000	36,309,626
22	** PERMANENT OPERATING FACILITIES						
23			56,967,000	47,980,901	4,727,378	1,895,000	2,363,721
24	** SERVICE FACIL. DEPRE. SALVAGE						
25				17,762,973	1,185,000	1,574,000	20,521,973-
26	** OTHER PROJECT COSTS						
27			10,352,000	4,169,128	530,000	4,153,000	1,499,872
28	* CONSTRUCTION PROGRAM-WATER		2,967,590,000	1,863,545,749	215,626,706	245,348,000	643,069,545
29	* CONSTRUCTION PROGRAM-POWER						
30	** NAVAJO PROJECT PARTICIPATION						
31			230,600,000	223,735,081	54,463	1,000,000	5,810,456

CENTRAL ARIZONA PROJECT
SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

	PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1	* CONSTRUCTION PROGRAM-POWER		230,800,000	223,735,081	54,463	1,000,000	5,810,456
2	* NON-INDIAN DISTRIBUTION SYSTEM						
3			374,890,000	276,299,865	22,080,507	2,732,109	73,777,519
4	* SAFETY OF DAMS DIVISION						
5			84,700,000	18,113,907	15,218,000	16,317,000	35,051,093
6	TOTAL PROGRAM COST		3,657,780,000	2,381,694,602	252,979,676	265,397,109	757,708,613
7	OTHER CONSOL. EXPEND & CREDIT		4,428,000-	7,953,912-			3,525,912
8	TOTAL EXPENDITURES		3,653,352,000	2,373,740,690	252,979,676	265,397,109	761,234,525
9	NONFEDERAL CASH CONTRIBUTIONS		269,294,307-	92,199,235-	18,791,000-	66,195,000-	92,109,072-
10	NONFEDERAL NONCASH CONTRIBUTION		76,273,693-	58,936,901-	2,029,594-	736,109-	14,571,089-
11	TOTAL FEDERAL EXPENDITURES		3,307,784,000	2,222,604,554	232,159,082	198,466,000	654,554,364
12	TOTAL RECLAMATION EXPENDITURES		3,307,784,000	2,222,604,554	232,159,082	198,466,000	654,554,364
13	UNDELIVERED ORDERS			16,301,376	16,301,376-		
14	TOTAL RECLAMATION OBLIGATIONS		3,307,784,000	2,238,905,930	215,857,706	198,466,000	654,554,364
15	TOTAL FUNDED OBLIGATIONS		3,307,784,000	2,238,905,930	215,857,706	198,466,000	654,554,364
16	METHOD OF FINANCING						
17	APPLICATION OF PRIOR YEAR FUND				1,163,706		
18							
19	APPROPRIATION AVAILABLE & REQD				214,694,000	198,466,000	654,554,364
20	NONFEDERAL PARTICIPATION				18,791,000	66,195,000	92,109,072

ITEMIZATION OF ESTIMATES
(In Thousands of Dollars)

Department of the Interior — Bureau of Reclamation

Appropriation Title: Construction Program

		Estimated 1990	Estimated 1991	Increase or Decrease .
Program and Financing:				
	Total direct obligations	669,252	609,430	(59,822)
	Prior Year Funds	(16,402)	0	16,402
	Appropriation	652,850	609,430	(43,420)
	Appropriation (General fund)	420,716	449,799	29,083
	Appropriation (Reclamation fund)	241,404	159,651	(81,753)
	Reduction pursuant to P.L. 99-177	(9,270)	0	9,270
Object Classification				
11.0	Personnel Compensation	52,364	50,020	(2,344)
12.1	Personnel Benefits	17,750	17,888	138
13.0	Benefits for Former Personnel	197	203	6
21.0	Travel and Transportation	4,528	4,544	16
22.0	Transportation of Things	1,032	1,162	130
23.1	Rental Payments to GSA	1,631	1,755	124
23.2	Rental Payments to Others	135	149	14
23.3	Communication, Utilities, Miscellaneous	2,022	2,073	51
24.0	Printing	1,119	747	(372)
25.0	Other Services	363,905	346,509	(17,396)
26.0	Supplies and Materials	2,972	3,247	275
31.0	Equipment	4,846	5,409	563
32.0	Lands and Structures	195,896	154,864	(41,032)
33.0	Investments and Loans	1,403	1,457	54
41.0	Grants, Subsidies, and contributions	19,055	19,055	0
42.0	Insurance Claims	79	31	(48)
43.0	Interest and Dividends	318	317	(1)
99.0	Total Obligations	669,252	609,430	(59,822)

ITEMIZATION OF ESTIMATES
(In Thousands of Dollars)

Department of the Interior — Bureau of Reclamation

Appropriation Title: Colorado River Basin Project
Lower Colorado River Basin Development Fund

Object Classification		Estimated 1990	Estimated 1991	Increase or Decrease
11.0	Personnel Compensation	20,536	22,114	1,578
12.1	Personnel Benefits	4,870	5,533	663
13.0	Benefits for Former Personnel	29	30	1
21.0	Travel and Transportation	1,328	1,326	(2)
22.0	Transportation of Things	636	696	60
23.1	Rental Payments to GSA	741	663	(78)
23.2	Rental Payments to Others	19	19	0
23.3	Communication, Utilities, Miscellaneous	741	741	0
24.0	Printing	369	386	17
25.0	Other Services	121,172	169,433	48,261
26.0	Supplies and Materials	1,033	1,038	5
31.0	Equipment	2,596	2,068	(528)
32.0	Lands and Structures	122,623	68,623	(54,000)
43.0	Interest and Dividends	4,462	5,819	1,357
99.0	Total Obligations	281,155	278,489	(2,666)

ITEMIZATION OF ESTIMATES
(In Thousands of Dollars)

Department of the Interior
Bureau of Reclamation
Appropriation Title: Colorado River Storage Project
Upper Colorado River Basin Fund

Object Classification		Estimated 1990	Estimated 1991	Increase or Decrease
11.0	Personnel Compensation	28,732	31,097	2,365
12.1	Personnel Benefits	5,949	6,792	843
13.0	Benefits for Former Personnel	236	236	0
21.0	Travel and Transportation	1,353	1,438	85
22.0	Transportation of Things	792	828	36
23.1	Rental Payments to GSA	375	400	25
23.2	Rental Payments to Others	123	145	22
23.3	Communication, Utilities, Miscellaneous	1,026	1,104	78
24.0	Printing	358	365	7
25.0	Other Services	13,213	13,340	127
26.0	Supplies and Materials	3,218	3,267	49
31.0	Equipment	2,600	2,742	142
32.0	Lands and Structures	120,793	105,829	(14,964)
43.0	Interest and Dividends	9,891	5,861	(4,030)
99.0	Total Obligations	188,659	173,444	(15,215)

OPERATION AND MAINTENANCE

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OPERATION AND MAINTENANCE - 3

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Project or Activity	State	Page Number
Paradox Valley, CRBSCP	Colorado	442
Parker-Davis Project	Arizona-California-Nevada	433
Pecos River Basin Water Salvage Project	New Mexico-Texas	451
Permanent Appropriation (CRDF)	Arizona-Nevada	474
Pick-Sloan Missouri Basin Program:		
Missouri Basin Area	Colorado-Kansas-Montana-Nebraska-North Dakota-South Dakota-Wyoming-Oklahoma-Texas	447
Power Program Services	Various	463
Provo River Project	Utah	457
Public Safety Program	Various	464
Reclamation Law Administration	Various	464
Rio Grande Project	New Mexico-Texas	451
Rogue River Basin Project, Talent Division	Oregon	434
Safety Evaluation of Existing Dams	Various	465
San Luis Valley Project, Closed Basin	Colorado	443
San Luis Valley Project, Conejos Division	Colorado	442
Soil and Moisture Conservation Program	Various	465
Solano Project	California	438
Tualatin Project	Oregon	455
Umatilla Project	Oregon	436
Vale	Oregon	436
Water Program Services	Various	466
Washita Basin Project	Oklahoma	453
Washoe Project	Nevada-California	452
Water Management and Conservation Program	Various	466
W.C. Austin, Altus Dam	Oklahoma	456
Yakima Project	Washington	438
Yuma Area Projects	Arizona-California-Nevada	434

OPERATION AND MAINTENANCE
General Statement

Summarized Financial Data:

Fiscal Year 1990:		
Appropriation (Reflects P.L. 99-177 reduction of $2,972,000)	$209,315,000	
Funds Advanced by Water Users	9,420,000	
Funds Advanced by States, Municipalities, and Other Non-Federal Agencies	942,000	
Funds Advanced by Other Federal Agencies	912,000	
Applied Operating Revenues (UCRBF and LCRBDF) 2/	115,495,000	
Funds Advanced by Water Users (Operating Revenues)	1,216,000	
Permanent Appropriations (CRDF) 3/	61,383,000	
Application of Prior Year Funds	3,854,614	
Total Obligations, FY 1990		$402,537,614
Fiscal Year 1991: 1/		
Estimates of Appropriation	231,516,000	
Funds Advanced by Water Users	9,445,000	
Funds Advanced by States, Municipalities, and Other Non-Federal Agencies	971,000	
Funds Advanced by Other Federal Agencies	1,144,000	
Applied Operating Revenues (UCRBF and LCRBDF) 2/	117,235,000	
Funds Advanced by Water Users (Operating Revenues)	1,511,000	
Permanent Appropriations (CRDF) 3/	50,636,000	
Total Obligations		$412,458,000
Non-Federal Participation - Services	50,000	
Total Program, FY 1991		$412,508,000

1/ In support of the energy conservation effort, the FY 1991 budget for the O&M program includes approximately $285,700 for energy conserving measures in our buildings. This amount is for conducting technical energy surveys and completion of energy retrofit measures such as improved insulation and improvement or replacement of heating, ventilating, and air conditioning systems. The efforts are in support of and in accordance with the National Energy Conservation Policy Act and Executive Order 12003.

2/ Upper Colorado River Basin Fund and Lower Colorado River Basin Development Fund.

3/ Colorado River Dam Fund. Includes $1,339,000 in FY 1990 and $21,173,000 in FY 1991 of prior year authority.

DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

Activity Overview

The Bureau of Reclamation operates and maintains power features and reserved works of multipurpose projects throughout the 17 Western States. The Operation and Maintenance (O&M) Program consists of O&M of Facilities and Associated O&M Programs. It is through O&M of Facilities that Reclamation ensures the operational readiness of irrigation, municipal and industrial water, and power facilities on constructed projects; protects the operational and structural integrity of the multi-billion dollar investment in Reclamation facilities; and ensures repayment of reimbursable project costs. The Associated O&M Programs are designed to ensure that the water and power facilities serve their intended purposes safely, productively, and economically. In carrying out the functions of these associated programs, Reclamation is able to manage and utilize the Federal land, water, and power resources in the most beneficial manner.

To support this effort in FY 1991, Reclamation is requesting an appropriation of $231,516,000. However, the total FY 1991 O&M program amounts to $412,458,000 which also includes applied revenues of $96,221,000 for O&M of the Central Arizona Project and $21,014,000 for O&M of the Colorado River Storage Project, $50,636,000 from Permanent Appropriations for O&M of the Boulder Canyon Project, and $13,071,000 of funds advanced by other Federal agencies and non-Federal entities for O&M of facilities for which they are responsible.

The new direction of Reclamation is supported in the FY 1991 O&M program by several activities such as: sealing of the Delta-Mendota Canal lining to conserve water lost through seepage; modifications to the Nimbus Fish Hatchery to improve fish production; endangered species computer model of the Platte River System; and participation with other Federal and non-Federal entities to identify and develop improved water conservation and water quality measures, inventory of existing wetlands on Reclamation lands, removal of hazardous materials from Reclamation lands, and other environmental activities.

Appropriation Financed Programs

The requested appropriation for projects and programs reflects the third year of a multi-year program started in FY 1989 to allow Reclamation to continue to eliminate the backlog of maintenance items which has developed over the past several years. While many of these items were considered preventive maintenance activities in the year in which they were deferred, they are fast reaching the stage where operational reliability cannot be ensured. Breakdown of equipment or failure of structures result in interruptions of water and power service and loss of revenue to the Government. Repairs cost more because they are performed on an emergency basis, and cause economic disruptions for project beneficiaries expecting the services to be delivered as provided under their repayment contract with Reclamation. The goal of this initiative is to restore the Bureau's capability to manage its O&M program in a cost-effective, businesslike manner that ensures the integrity and safety of project structures and facilities; maximizes revenues; satisfies State and Federal laws; minimizes unscheduled service outages; and maintains safety standards for protection of the Federal investment, Federal and contractor employees, and the public.

The increased project and program requirements above the fiscal year 1990 program consists primarily of project equipment replacements, additions, extraordinary maintenance, and service-type contracts which have been delayed from previous years for various reasons. Project replacements, additions, and extraordinary maintenance includes such items as generator rewinds and/or overhaul, PCB contaminated transformer replacements, needle valve replacements, spillway repairs, canal check and slide repairs or replacement, cathodic protection for spillway and canal gates, canal operating bridge rehabilitation, vehicle and heavy mobile equipment replacements, powerplant and pumping plant crane repairs, river bankline repairs or improvements, items which support the new direction of the Bureau, and other similar items of work. The increase in the associated programs relate primarily to the O&M Resources Optimization program, Water Management and Conservation program, Departmental Irrigation Drainage program, Land Resources Management program, and the addition of the Administration of Environmental Initiatives and Administration of Recreation and Fish and Wildlife Initiatives programs.

Revenue Financed Programs
Upper Colorado River Basin Fund
Lower Colorado River Basin Development Fund

Operation, maintenance, and replacement programs on the four initial units and four participating projects of the Colorado River Storage Project and the Colorado River Basin Project (Central Arizona Project), are funded from revenue collections which are available without appropriation. Section 5(c) of the Colorado River Storage Project provides that all revenues collected from operation of the project and participating projects shall be credited to the Upper Colorado River Basin Fund and shall be available without further appropriation for defraying the costs of operation, maintenance, replacements, and emergency expenditures for facilities of the project and participating projects. With respect to each participating project, cost of operation, maintenance, and replacements are paid from revenues from such project. Project costs allocated to flood control, recreation, and fish and wildlife facilities are financed from project revenues and are nonreimbursable as provided in the Act. Section 403 of the Colorado River Basin Project Act provides that all revenues from operation of the project shall be credited to the Lower Colorado River Basin Development Fund and be available without further appropriation to defray the costs of operation, maintenance, replacements, and emergency expenditures of the project.

Permanent Appropriation Financed Program
Colorado River Dam Fund

With passage of the Hoover Powerplant Act of 1984, a Permanent Appropriation was created to finance operation, maintenance, and replacement cost of the Boulder Canyon Project. Section 104(a) of the Act provides that all revenues from operation of the project shall be credited to the Colorado River Dam Fund and shall be available without further appropriation to defray the costs of operation, maintenance, replacements, and emergency expenditures for facilities of the project.

BUREAU OF RECLAMATION
OPERATION AND MAINTENANCE PROGRAM

Method of Financing FY 1990 and FY 1991
(In Thousands of Dollars)

Project and State	Fiscal Year 1990				Fiscal Year 1991		
	Allocation of Funds	Prior year funds applied	Cash advances/ reimbursements	Total obligations	Allocation of funds	Cash advances/ reimbursements	Total obligations
O&M PROJECTS:							
Arizona							
Indian Water Rights Settlement	5,016	317	0	5,333	4,800	0	4,800
Arizona-California-Nevada							
Parker-Davis	4,256	8	1,967	6,231	3,484	1,489	4,973
Yuma Area.	20,388	0	0	20,388	22,995	0	22,995
California							
Cachuma.	170	15	0	185	185	0	185
Central Valley	49,254	0	0	49,254	64,033	0	64,033
Orland	131	53	0	184	185	0	185
Solano	1,589	0	0	1,589	1,963	0	1,963
California-Oregon							
Klamath.	575	0	133	708	658	135	793
Colorado							
Collbran	1,255	9	0	1,264	1,658	0	1,658
Eastern Colorado	10,930	0	413	11,343	8,604	453	9,057
Grand Valley, CRBSCP	286	113	0	399	295	0	295
Paradox Valley, CRBSCP . . .	227	4	0	231	160	0	160
San Luis Valley							
-Closed Basin Div.	1,541	1	0	1,542	1,601	0	1,601
-Conejos Div	72	82	0	154	173	0	173
Idaho-Oregon							
Boise Area	3,230	0	486	3,716	3,093	485	3,578
Owyhee	480	8	0	488	255	310	565
Idaho-Wyoming							
Minidoka Area.	11,303	0	1,155	12,458	14,764	974	15,738

BUREAU OF RECLAMATION
OPERATION AND MAINTENANCE PROGRAM

Method of Financing FY 1990 and FY 1991
(In Thousands of Dollars)

Project and State	Fiscal Year 1990				Fiscal Year 1991		
	Allocation of Funds	Prior year funds applied	Cash advances/ reimbursements	Total obligations	Allocation of funds	Cash advances/ reimbursements	Total obligations
Montana							
Hungry Horse	6,594	0	0	6,594	4,176	0	4,176
Milk River	121	0	155	276	130	205	335
Nevada-California							
Washoe	389	0	0	389	366	0	366
New Mexico							
Brantley	251	2	0	253	258	0	258
Carlsbad	27	72	46	145	38	42	80
Middle Rio Grande.	8,764	104	1,135	10,003	7,279	1,164	8,443
New Mexico-Texas							
Pecos River Basin Water Salvage.	296	2	0	298	270	0	270
Rio Grande	2,573	44	788	3,405	3,639	805	4,444
Oklahoma							
Washita Basin.	21	0	0	21	35	0	35
McGee Creek.	233	0	0	233	330	0	330
W C Austin, Altus Dam. . .	0	0	0	0	35	0	35
Oregon							
Crooked River.	318	0	0	318	133	0	133
Deschutes.	50	75	0	125	65	0	65
Rogue River Basin -Talent Div.	335	8	0	343	324	0	324
Tualatin	47	11	69	127	50	76	126
Umatilla	520	55	367	942	178	464	642
Vale	155	10	129	294	0	0	0
South Dakota							
Rapid Valley	0	0	29	29	0	28	28

BUREAU OF RECLAMATION
OPERATION AND MAINTENANCE PROGRAM

Method of Financing FY 1990 and FY 1991
(In Thousands of Dollars)

Project and State	Fiscal Year 1990				Fiscal Year 1991		
	Allocation of funds	Prior year funds applied	Cash advances/ reimbursements	Total obligations	Allocation of funds	Cash advances/ reimbursements	Total obligations
Utah							
Provo River.	188	2	0	190	138	0	138
Washington							
Columbia Basin	27,943	358	1,975	30,276	32,940	2,000	34,940
Yakima	5,114	0	1,450	6,564	5,691	1,754	7,445
Various States							
P-S, Missouri Basin Progr. Missouri Basin Area. . .	19,961	336	913	21,210	17,400	1,036	18,436
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Subtotal - O&M Projects . . .	184,603	1,689	11,210	197,502	202,381	11,420	213,801
O&M PROGRAMS:							
Various States							
Admin. of Environmental Initiatives.	0	0	0	0	560	0	560
Admin. of Recreation and F&W Initiatives.	0	0	0	0	525	0	525
Departmental Irrigation Drainage Program	789	0	0	789	2,524	0	2,524
Examination of Existing Structures	12,228	250	0	12,478	374	0	374
O&M Resources Optimization	94	0	0	94	1,000	0	1,000
Water Management and Conservation	225	25	0	250	850	75	925
Land Resources Management Program.	3,268	56	0	3,324	4,836	0	4,836
Miscellaneous Flood Control Operations . . .	499	4	0	503	716	0	716
Nego. and Admin. of Water Marketing Contracts. . .	39	0	19	58	40	19	59

BUREAU OF RECLAMATION
OPERATION AND MAINTENANCE PROGRAM

Method of Financing FY 1990 and FY 1991
(In Thousands of Dollars)

Project and State	Fiscal Year 1990				Fiscal Year 1991		
	Allocation of Funds	Prior year funds applied	Cash advances/ reimburse-ments	Total obli-gations	Allocation of funds	Cash advances/ reimburse-ments	Total obli-gations
O&M PROGRAMS (Cont'd)							
Soil and Moisture Conservation Program . .	876	15	0	891	1,135	0	1,135
Power Program Services . .	738	2	0	740	500	0	500
Public Safety-BOR Facilities	2,148	0	0	2,148	2,953	0	2,953
Reclamation Law Administration	3,808	0	45	3,853	3,702	46	3,748
Safety Evaluation of Existing Dams	0	0	0	0	9,000	0	9,000
Water Program Services . .	0	0	0		420	0	420
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Subtotal - O&M Programs . . .	24,712	352	64	25,128	29,135	140	29,275
	======	======	======	======	======	======	======
TOTAL - PROJECTS/PROGRAMS	209,315	2,041	11,274	222,630	231,516	11,560	243,076
LOWER COLORADO RIVER BASIN DEVELOPMENT FUND							
Colorado River Basin Proj.	0	0	93,520	93,520	0	96,221	96,221
UPPER COLO. RIVER BASIN FUND							
Colorado River Storage Proj							
Colorado							
Miscellaneous Flood Control Operations . . .	0	0	32	32	0	0	0
Dolores.	0	0	56	56	0	57	57
New Mexico-Colorado							
San Juan-Chama	0	0	1,282	1,282	0	1,555	1,555

BUREAU OF RECLAMATION
OPERATION AND MAINTENANCE PROGRAM

Method of Financing FY 1990 and FY 1991
(In Thousands of Dollars)

Project and State	Fiscal Year 1990				Fiscal Year 1991		
	Allocation of Funds	Prior year funds applied	Cash advances/ reimburse- ments	Total obli- gations	Allocation of funds	Cash advances/ reimburse- ments	Total obli- gations
Utah							
Central Utah							
-Bonneville Unit	0	0	10	10	0	85	85
-Jensen Unit	0	0	167	167	0	95	95
Wyoming							
Seedskadee Participating .	0	0	328	328	0	507	507
Various States							
Initial Units.	0	1,814	20,091	21,905	0	18,976	18,976
Consumptive Use Studies. .	0	0	196	196	0	200	200
Quality of Water Studies .	0	0	245	245	0	250	250
Emergency Funds.	0	0	490	490	0	500	500
Safety Evaluation of Existing Dams	0	0	294	294	0	300	300
TOTAL - UCRBF	0	1,814	23,191	25,005	0	22,525	22,525
PERMANENT O&M APPROPRIATIONS							
COLORADO RIVER DAM FUND							
Boulder Canyon 1/.	60,044	1,339	0	61,383	50,636	0	50,636
TOTAL O&M PROGRAM	269,359	5,194	127,985	402,538	282,152	130,306	412,458

1/ FY 1991 includes $21,173,000 of prior year authority.

OPERATION AND MAINTENANCE
OBLIGATIONS BY FUNCTION

(In Thousands of Dollars)

Project and State	Irrigation		Power		Flood Control		Other		Total Obligations	
	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991
APPROPRIATED O&M ACTIVITIES:										
Appropriated O&M Projects:										
Arizona-California-Nevada										
Indian Water Rights Settlement	5,333	4,800	0	0	0	0	0	0	5,333	4,800
Parker-Davis	0	0	4,264	3,484	0	0	1,967	1,489	6,231	4,973
Yuma Area Projects	300	300	0	0	12,234	13,506	7,854	9,189	20,388	22,995
California										
Cachuma	102	102	0	0	0	0	83	83	185	185
Central Valley	31,287	36,478	8,989	12,601	587	867	8,471	14,087	49,254	64,033
Orland	0	0	0	0	0	0	184	185	184	185
Solano	185	187	0	0	12	12	1,392	1,764	1,589	1,963
California-Oregon										
Klamath	569	653	0	0	111	111	28	29	708	793
Colorado										
Collbran	0	0	1,224	1,499	0	0	40	159	1,264	1,658
Eastern Colorado Projects	1,209	1,224	9,729	7,261	42	43	363	529	11,343	9,057
Grand Valley, CRBSCP	0	0	0	0	0	0	399	295	399	295
Paradox Valley, CRBSCP	0	0	0	0	0	0	231	160	231	160
San Luis Valley, Closed Basin	0	0	0	0	0	0	1,542	1,601	1,542	1,601
San Luis Valley, Conejos Div.	0	0	0	0	153	172	1	1	154	173
Idaho-Oregon										
Boise Area Projects	554	485	2,233	2,431	525	317	404	345	3,716	3,578
Owyhee Project	488	565	0	0	0	0	0	0	488	565

OPERATION AND MAINTENANCE
OBLIGATIONS BY FUNCTION

(In Thousands of Dollars)

Project and State	Irrigation		Power		Flood Control		Other		Total Obligations	
	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991
Idaho-Wyoming										
Minidoka Area Projects	1,166	961	9,954	12,858	641	707	697	1,232	12,458	15,738
Montana										
Hungry Horse	0	0	6,365	4,001	178	134	51	41	6,594	4,176
Milk River	155	205	0	0	61	35	60	95	276	335
Nevada-California										
Washoe	0	0	149	119	121	125	119	122	389	366
New Mexico										
Brantley	0	0	0	0	153	158	100	100	253	258
Carlsbad	46	42	0	0	98	27	1	11	145	80
Middle Rio Grande	294	298	0	0	8,868	7,279	841	866	10,003	8,443
New Mexico-Texas										
Pecos River Basin Water Salvage	0	0	0	0	0	0	298	270	298	270
Rio Grande	735	750	1,842	2,612	22	41	806	1,061	3,405	4,444
Oklahoma										
Washita Basin	0	0	0	0	21	35	0	0	21	35
McGee Creek	0	0	0	0	0	39	233	291	233	330
W C Austin, Altus Dam	0	0	0	0	0	35	0	0	0	35
Oregon										
Crooked River	0	0	0	0	39	46	279	87	318	133
Deschutes	0	0	0	0	30	34	95	31	125	63
Rogue River Basin, Talent Division	0	0	269	278	70	42	4	4	343	324

OPERATION AND MAINTENANCE
OBLIGATIONS BY FUNCTION

(In Thousands of Dollars)

Project and State	Irrigation		Power		Flood Control		Other		Total Obligations	
	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991
Tualatin	24	26	0	0	20	18	83	82	127	126
Umatilla	170	67	0	0	70	32	702	543	942	642
Vale	294	0	0	0	0	0	0	0	294	0
South Dakota										
Rapid Valley	0	0	0	0	0	0	29	28	29	28
Utah										
Provo River	0	0	169	104	0	0	21	34	190	138
Washington										
Columbia Basin	1,932	1,957	26,713	29,493	2,981	2,843	650	647	30,276	34,940
Yakima	1,450	1,754	2,516	1,977	1,066	889	1,532	2,825	6,564	7,445
Various States										
Pick-Sloan Missouri Basin Program: Missouri Basin Area	2,250	1,573	14,351	12,687	2,197	2,000	2,412	2,176	21,210	18,436
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Subtotal - Appropriated O&M Projects	48,543	52,407	86,767	91,405	30,220	29,547	31,972	40,442	197,502	213,801
APPROPRIATED O&M PROGRAMS										
Various States										
Admin. of Environmental Initiatives	0	0	0	0	0	0	0	560	0	560
Admin. of Recreation and Fish and Wildlife Initiatives	0	0	0	0	0	0	0	525	0	525
Departmental Irrigation Drainage Program	0	0	0	0	0	0	789	2,524	789	2,524
Examination of Existing Structures	0	0	0	0	12,478	374	0	0	12,478	374
O/M Resources Optimization	0	0	0	0	0	0	94	1,000	94	1,000

OPERATION AND MAINTENANCE
OBLIGATIONS BY FUNCTION

(In Thousands of Dollars)

Project and State	Irrigation		Power		Flood Control		Other		Total Obligations	
	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991
Water Management and Conservation	50	455	0	0	0	0	200	470	250	925
Land Resources Management Program	0	0	0	0	0	0	3,324	4,836	3,324	4,836
Miscellaneous Flood Control Operations	0	0	0	0	503	716	0	0	503	716
Negotiations and Administration of Water Marketing Contracts	19	19	0	0	5	6	34	34	58	59
Power Program Services	0	0	740	500	0	0	0	0	740	500
Public Safety	0	0	0	0	0	0	2,148	2,953	2,148	2,953
Safety Evaluation of Existing Dams (SEED)	0	0	0	0	0	9,000	0	0	0	9,000
Soil and Moisture Conservation Program	0	0	0	0	0	0	891	1,135	891	1,135
Reclamation Law Administration	3,853	3,748	0	0	0	0	0	0	3,853	3,748
Water Program Services	0	0	0	0	0	0	0	420	0	420
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Subtotal - Annual Appropriated O&M Programs	3,922	4,222	740	500	12,966	10,096	7,480	14,457	25,128	29,275
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TOTAL - ANNUAL APPROPRIATED O&M ACTIVITIES	52,465	56,629	87,507	91,905	43,206	39,643	39,452	54,899	222,630	243,076
REVENUE O&M PROGRAM										
Colorado River Basin Project	40,470	41,835	44,893	44,893	0	0	8,157	9,493	93,520	96,221
Colorado River Storage Project:										
Colorado Misc. Flood Control Oper.	0	0	0	0	32	0	0	0	32	0
Dolores (CRSPP)	0	0	0	0	2	2	54	55	56	57
New Mexico-Colorado San Juan - Chama Participating	357	447	0	0	0	0	925	1,108	1,282	1,555

OPERATION AND MAINTENANCE
OBLIGATIONS BY FUNCTION

(In Thousands of Dollars)

Project and State	Irrigation		Power		Flood Control		Other		Total Obligations	
	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991
Utah										
Central Utah Participating										
Bonneville Unit	0	0	0	0	10	10	0	75	10	85
Jensen Unit	0	0	0	0	10	10	157	85	167	95
Wyoming										
Seedskadee Participating	0	0	243	382	0	0	85	125	328	507
Various States Initial Units	0	0	21,578	18,611	11	11	316	354	21,905	18,976
Consumptive Use Studies	0	0	0	0	0	0	196	200	196	200
Quality of Water Studies	0	0	0	0	0	0	245	250	245	250
Emergency Funds	0	0	466	476	2	2	22	22	490	500
Examination of Existing Dams	0	0	0	0	294	300	0	0	294	300
Subtotal Colorado River Storage Project	357	447	22,287	19,469	361	335	2,000	2,274	25,005	22,525
TOTAL REVENUE O&M PROGRAM	40,827	42,282	67,180	64,362	361	335	10,157	11,767	118,525	118,746
PERMANENT O&M APPROPRIATIONS										
Boulder Canyon Project 1/	0	0	61,383	50,636	0	0	0	0	61,383	50,636
TOTAL O&M PROGRAM (Appropriated and Revenues)	93,292	98,911	216,070	206,903	43,567	39,978	49,609	66,666	402,538	412,458

1/ Includes $1,339,000 and $20,492,000 in fiscal years 1990 and 1991, respectively, from prior year authority.

OPERATION AND MAINTENANCE
DETAILS FOR "OTHER"
OBLIGATIONS BY FUNCTION

(In Thousands of Dollars)

Project and State	M&I Water		Fish and Wildlife		Water Control		Recreation		Land Resources Management		Total Other	
	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991
APPROPRIATED O&M ACTIVITIES:												
Appropriated O&M Projects:												
Arizona-California-Nevada												
Indian Water Rights Settlement	0	0	0	0	0	0	0	0	0	0	0	0
Parker-Davis	1,967	1,489	0	0	0	0	0	0	0	0	1,967	1,489
Yuma Area Projects	0	0	368	400	7,486	8,789	0	0	0	0	7,854	9,189
California												
Cachuma	81	81	0	0	0	0	2	2	0	0	83	83
Central Valley	2,659	3,469	4,689	9,384	40	71	1,083	1,163	0	0	8,471	14,087
Orland	0	0	0	0	0	0	184	185	0	0	184	185
Solano	27	28	0	0	0	0	1,365	1,736	0	0	1,392	1,764
California-Oregon												
Klamath	0	0	0	0	0	0	28	29	0	0	28	29
Colorado												
Collbran	0	0	0	0	0	0	0	0	40	159	40	159
Eastern Colorado Projects	130	285	178	184	45	50	10	10	0	0	363	529
Grand Valley, CRBSCP	0	0	131	89	268	206	0	0	0	0	399	295
Paradox Valley	0	0	0	0	231	160	0	0	0	0	231	160
San Luis Valley, Closed Basin	0	0	45	45	1,497	1,556	0	0	0	0	1,542	1,601
San Luis Valley, Conejos Div.	0	0	0	0	0	0	1	1	0	0	1	1
Idaho-Oregon												
Boise Area Projects	0	0	55	37	0	0	298	242	51	66	404	345
Owyhee	0	0	0	0	0	0	0	0	0	0	0	0

OPERATION AND MAINTENANCE
DETAILS FOR "OTHER"
OBLIGATIONS BY FUNCTION

(In Thousands of Dollars)

Project and State	M&I Water		Fish and Wildlife		Water Control		Recreation		Land Resources Management		Total Other	
	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991
Idaho-Wyoming												
Minidoka Area Projects	53	98	295	811	0	0	252	226	97	97	697	1,232
Montana												
Hungry Horse	0	0	25	20	0	0	26	21	0	0	51	41
Milk River	0	0	0	0	60	95	0	0	0	0	60	95
Nevada-California												
Washoe	0	0	119	122	0	0	0	0	0	0	119	122
New Mexico												
Brantley	0	0	100	100	0	0	0	0	0	0	100	100
Carlsbad	0	0	0	0	0	0	1	1	0	10	1	11
Middle Rio Grande	0	0	0	0	841	866	0	0	0	0	841	866
New Mexico-Texas												
Pecos River Basin Water Salvage	0	0	0	0	298	270	0	0	0	0	298	270
Rio Grande	0	0	0	0	598	808	36	35	172	198	806	1,041
Oklahoma												
Washita Basin	0	0	0	0	0	0	0	0	0	0	0	0
McGee Creek	0	0	155	175	0	0	78	116	0	0	233	291
W C Austin, Altus Dam	0	0	0	0	0	0	0	0	0	0	0	0
Oregon												
Crooked River	0	0	5	7	0	0	274	80	0	0	279	87
Deschutes	0	0	0	0	75	0	20	31	0	0	95	31
Rogue River Basin, Talent Division	0	0	4	4	0	0	0	0	0	0	4	4

OPERATION AND MAINTENANCE
DETAILS FOR "OTHER"
OBLIGATIONS BY FUNCTION

(In Thousands of Dollars)

Project and State	M&I Water		Fish and Wildlife		Water Control		Recreation		Land Resources Management		Total Other	
	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991
Tualatin	29	32	13	11	16	18	25	21	0	0	83	82
Umatilla	0	0	694	531	0	0	8	4	0	8	702	543
Vale	0	0	0	0	0	0	0	0	0	0	0	0
South Dakota												
Rapid Valley	29	28	0	0	0	0	0	0	0	0	29	28
Utah												
Provo River	0	0	0	0	0	0	0	0	21	34	21	34
Washington												
Columbia Basin	0	0	286	286	64	61	60	60	240	240	650	647
Yakima	0	0	1,382	2,671	0	0	150	154	0	0	1,532	2,825
Various States												
Pick-Sloan Missouri Basin Program:												
Missouri Basin Area	461	346	133	138	0	0	1,262	1,177	556	515	2,412	2,176
Subtotal - Appropriated O&M Projects	5,436	5,856	8,677	15,015	11,519	12,950	5,163	5,294	1,177	1,327	31,972	40,442
APPROPRIATED O&M PROGRAMS												
Various States												
Admin. of Environmental Initiatives	0	0	0	200	0	0	0	0	0	360	0	560
Admin. of Recreation and Fish and Wildlife Initiatives	0	0	0	50	0	0	0	475	0	0	0	525
Department Irrigation Drainage Program	0	0	0	0	789	2,524	0	0	0	0	789	2,524
Examination of Existing Structures	0	0	0	0	0	0	0	0	0	0	0	0
Safety Evaluation of Existing Dams	0	0	0	0	0	0	0	0	0	0	0	0
O/M Resources Optimization	0	0	0	0	94	1,000	0	0	0	0	94	1,000

OPERATION AND MAINTENANCE DETAILS FOR "OTHER" OBLIGATIONS BY FUNCTION

(In Thousands of Dollars)

Project and State	M&I Water		Fish and Wildlife		Water Control		Recreation		Land Resources Management		Total Other	
	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991
Water Management and Conservation	0	0	0	0	200	470	0	0	0	0	200	470
Land Resources Management Program	0	0	0	0	0	0	0	0	3,326	4,836	3,326	4,836
Miscellaneous Flood Control Operations	0	0	0	0	0	0	0	0	0	0	0	0
Negotiations and Administration of Water Marketing Contracts	34	34	0	0	0	0	0	0	0	0	34	34
Power Program Services	0	0	0	0	0	0	0	0	0	0	0	0
Public Safety	0	0	0	0	2,148	2,953	0	0	0	0	2,148	2,953
Soil and Moisture Conservation Program	0	0	0	0	891	1,135	0	0	0	0	891	1,135
Reclamation Law Administration	0	0	0	0	0	0	0	0	0	0	0	0
Water Program Services	0	0	0	0	0	420	0	0	0	0	0	420
Subtotal - Annual Appropriated O&M Programs	34	34	0	250	4,122	8,502	0	475	3,326	5,196	7,480	14,457
TOTAL - ANNUAL APPROPRIATED O&M ACTIVITIES	5,470	5,890	8,677	15,265	15,641	21,452	5,163	5,769	4,501	6,523	39,452	54,899
REVENUE O&M PROGRAM												
Colorado River Basin Project	8,157	9,493	0	0	0	0	0	0	0	0	8,157	9,493
Colorado River Storage Project:												
Colorado Misc. Flood Control Oper.	0	0	0	0	0	0	0	0	0	0	0	0
Dolores (CRSPP)	0	0	36	37	18	18	0	0	0	0	54	55
New Mexico-Colorado San Juan - Chama Participating	789	980	7	7	0	0	129	121	0	0	925	1,108

OPERATION AND MAINTENANCE
DETAILS FOR "OTHER"
OBLIGATIONS BY FUNCTION

(In Thousands of Dollars)

Project and State	M&I Water		Fish and Wildlife		Water Control		Recreation		Land Resources Management		Total Other	
	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991	FY 1990	FY 1991
Utah												
Central Utah												
Participating												
Bonneville Unit	0	0	0	0	0	0	0	75	0	0	0	75
Jensen Unit	0	0	0	0	0	0	157	85	0	0	157	85
Wyoming												
Seedskadee												
Participating	45	50	0	0	0	0	40	75	0	0	85	125
Various States												
Initial Units	71	73	169	175	0	0	0	0	76	106	316	354
Consumptive Use Studies	0	0	0	0	196	200	0	0	0	0	196	200
Quality of Water Studies	0	0	0	0	245	250	0	0	0	0	245	250
Emergency Funds	8	8	14	14	0	0	0	0	0	0	22	22
Examination of Existing Structures	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal Colorado River Storage Project	913	1,111	226	233	459	468	326	356	76	106	2,000	2,276
TOTAL REVENUE O&M PROGRAM	9,070	10,604	226	233	459	468	326	356	76	106	10,157	11,767
PERMANENT O&M APPROPRIATIONS												
Boulder Canyon Project	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL O&M PROGRAM (Appropriated and Revenues)	14,540	16,494	8,903	15,498	16,100	21,920	5,489	6,125	4,577	6,629	49,609	66,666

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
O&M PROJECTS:			
Arizona			
Indian Water Rights Settlement Projects	$ 5,016,000	$ 4,800,000	$ -216,000

The program of $4,800,000 will pay for the operation and maintenance costs associated with the delivery of 75,000 acre-feet of Central Arizona Project water to the Ak Chin Indian Community. This water will be conveyed 305 miles through the Hayden-Rhodes Aqueduct, the Salt-Gila Aqueduct, the Santa Rosa Canal and facilities on the reservation to the Indian Community. The Ak Chin Indian Water Rights Settlement Act (P.L. 98-530, 10/19/84) provides the Ak Chin Indian Community water needed to irrigate 16,000 acres of farmland annually. The Act requires that the water be delivered to the southeast corner of the reservation without cost to the Community.

The decrease of $216,000 resulted from revised costs of water delivery in FY 1991.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Arizona-California-Nevada			
Parker-Davis Project	$ 4,256,000	$ 3,484,000	$ -772,000

The program of $3,484,000 provides for continuing operation and maintenance of Parker and Davis Dams and reservoirs, and two powerplants and switchyards. The reservoirs have a combined storage capacity of 2,466,300 acre-feet, and provide for flood control, recreation, and fish and wildlife benefits. The two powerplants, which have an annual power generation of approximately 2,750,000,000 kWh of low-cost, renewable hydropower, serve various sectors of the southwest and the nation as a whole.

Replacement and addition items in FY 1991 total $731,000 and at the Parker Division includes $433,000 for 161-kV transformers, $50,000 for penstock equalization valves, $38,000 for an aerial manlift truck, $27,000 for work and transportation equipment, and $15,000 for powerplant water lines; and at the Davis Division includes $100,000 for the 125-ton crane control modernization; $36,000 for transportation equipment, and $32,000 for tools and work equipment.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)

Parker-Davis Project (continued)

Extraordinary maintenance items total $350,000 and at the Parker Division include $25,000 for painting spillway gates, $15,000 for domestic water lines in the dam, $12,000 to upgrade 200-ton crane, $5,000 to upgrade 10-ton crane, $4,000 to upgrade 6-ton crane. At the Davis Division items include $238,000 for stilling basin repairs, $20,000 for spillway gate maintenance, $16,000 for penstock expansion joint repairs, and $15,000 to recondition generator brakes.

The decrease of $772,000 includes $715,000 for replacements and additions; $43,000 for noncontract costs and $29,000 for extraordinary maintenance; partially offset by $15,000 for recurring O&M expenses.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Yuma Area Projects	$20,388,000	$22,229,000	$ +1,841,000

The program of $22,229,000 provides for continued operation and maintenance of the following O&M program activities: O&M of Water Conveyance facilities from Davis Dam to the Southerly Boundary with Mexico (approximately 276 miles), which includes the Colorado River channel and settling basins, river banklines (156 miles), jetties and training structures, access roads (73 miles), operating bridges (2), levees [illegible] miles), floodways, drainage and/or groundwater recovery wells (63), and related carriage facilities (49 miles), and the Protective and Regulatory Pumping Unit wellfield with associated system, transmission lines, and switchyard/substation; O&M of Salinity Operations which include the Yuma Desalting Plant (YDP), U.S. Bypass Drain, Mexico Bypass Drain, Main Outlet Drain Extension Siphon, YDP transmission line, switchyard, and substation; O&M of Fish and Wildlife including constructed mitigation features and environmental investigations and studies to satisfy NEPA compliance and ensure the integrity of mitigated work: O&M of Reservoir facilities which include Imperial Dam, Laguna Dam, Senator Wash Dam, and Senator Wash Pumping/Generating Plant; and Land Resources Management activities which include costs related to the administration of Reclamation lands, boundary and right-of-way studies, surveys, crop census, and the Reclamation Law Administration.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)

Yuma Area Projects (continued)

Replacements and additions in FY 1991 total $273,000 and include; $100,000 for computer equipment, $125,000 for miscellaneous work equipment, $30,000 for electronic/microwave equipment, and $18,000 for radio and telephone equipment.

Extraordinary Maintenance for FY 1991 totals $1,929,000 and includes $1,700,000 for Yuma Desalting Plant rehabilitation, $100,000 for stockpile replenishment, $99,000 for a hazardous substance program, and $30,000 for project office landscape maintenance contract.

The increase of $1,841,000 includes $1,389,000 in extraordinary maintenance, $1,339,000 in general operating and support services, $700,000 in contracted O&M of the Yuma Desalting Plant, $150,000 for desalting analysis, $30,000 for O&M of Mumme Farms, and $22,000 for ongoing O&M contracts. These are partially offset by decreases of $1,347,000 for power and chemicals to run the plant, $230,000 for an Imperial Dam Operating Agreement, and $212,000 for replacements and additions.

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Cachuma Project	$ 170,000	$ 185,000	$ +15,000

The program of $185,000 provides for continued operation and routine maintenance of one storage dam and reservoir which is regulated to provide irrigation and municipal and industrial water.

The increase of $15,000 is for additional work in connection with water rights and preventive maintenance activities.

California Central Valley	$49,254,000	$64,033,000	$+14,779,000

The program of $64,033,000 provides for operation and routine maintenance of 16 storage dams and reservoirs, 3 diversion dams, 593 miles of canals, 39 pumping plants, 89 miles of drains, 28.7 miles of pipelines, conduits and aqueducts, 16.3 miles of tunnels, 2 pumping-generating plants, and 7 powerplants. The project provides irrigation water, municipal and industrial water, hydroelectric power, flood control, water quality, recreation, and fish and wildlife benefits.

Replacements and additions for fiscal year 1991 total $8,619,000 and includes $2,991,000 for rewind of Keswick Powerplant units 1, 2, and 3, $2,125,000 for uprate of Shasta Powerplant units 3, 4, and 5, $615,000 for vehicles and heavy equipment such as road graders, backhoes, air compressors, spray rigs, forklifts and dump trucks, $798,000 for impeller replacement at Dos Amigos Pumping Plant, $250,000 for ADP, systems control, microwave, and test equipment, $250,000 for the excitation system at Tracy Pumping Plant, $320,000 for stoplogs at Nimbus Powerplant, $50,000 for flow meters, $160,000 to replace the trashrake at Nimbus Powerplant, $120,000 for shop equipment, office furniture and communications system at New Melones administrative center, $100,000 for a power distribution board at Tracy Pumping Plant, $100,000 for DXA switchgear at Tracy switchyard, $80,000 for an intrusion alarm system at Folsom headquarters, $75,000 for transformer and power equipment at Tracy Fish Facilities,

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Central Valley (continued)			

$70,000 for potential transformers at Trinity and Spring Creek powerplants and Carr powerhouse, $70,000 for AC/DC excitation breakers at New Melones Powerplant, $74,000 for miscellaneous equipment replacements, $60,000 for fire protection at Willows office, $60,000 for protective relays at Folsom Powerplant, $55,000 for an oil centrifuge at Folsom Powerplant, $50,000 to replace the air conditioning system at Tracy headquarters, $50,000 for a boring bar machine at Tracy Pumping Plant, $35,000 for an additional hydromet station, $30,000 for a cooling water plug valve, $16,000 for a fish loader at Trinity Fish Hatchery, and $15,000 for a turbine greasing system.

Extraordinary maintenance for fiscal year 1991 total $5,364,000 and includes $1,711,000 for canal maintenance such as sealing or replacement of lining and removal of silt and debris, $1,000,000 to continue modifications to the Nimbus fish hatchery, $675,000 for bridge rehabilitation on the Friant-Kern Canal, $745,000 for resurfacing roads and parking areas, $370,000 to dredge the Tracy Pumping Plant intake channel, $144,000 for corrosion protection at Folsom Dam and Reservoir and Dos Amigos Pumping Plant, $185,000 for rehabilitation of domestic water systems at O'Neill Pumping Plant, Shasta headquarters and New Melones Dam and Reservoir, $90,000 for upgrade of ADP systems, $125,000 for displays and brochures for the public information center at New Melones, $90,000 to rehabilitate cooling water systems at Tracy Pumping Plant and Folsom Powerplant, $75,000 for modifications to the louver crane at the Tracy Fish collecting facilities, $50,000 for safety compliance items at Shasta Dam, $40,000 for trashrake parts and materials at Tracy Pumping Plant, $40,000 for brake rings at Folsom Powerplant, $15,000 to recondition the Folsom warehouse crane, and $9,000 to recondition the station-service air compressor at New Melones Powerplant.

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Central Valley Project (continued)			

The increase of $14,779,000 includes $4,958,000 for replacement and additions, $4,190,000 for extraordinary maintenance, $2,732,000 for monitoring and evaluation activities at Kesterson Reservoir, $2,499,000 for recurring operation and maintenance expenses, $300,000 for environmental compliance activities involving renewal of water service contracts for the Friant Unit in connection with the San Joaquin River Basin Resource Management Initiative funded under the General Investigations program, $50,000 to retrofit facilities for the handicapped and $50,000 for fish food for the fish hatcheries.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Solano Project	$ 1,589,000	$ 1,963,000	$ +374,000

The program of $1,963,000 provides for continued operation and maintenance of 2 storage dams and reservoirs, 1 diversion dam, 32.3 miles of canals, and 3.4 miles of pipelines and for administration of the Lake Berryessa Recreation Area. The reservoirs are regulated for irrigation, municipal and industrial water, and flood control. The canals and pipelines are operated by the Solano Irrigation District with funding in the amount of $133,000 provided by the Bureau. All other facilities are operated and maintained by the Bureau.

Replacements and additions for fiscal year 1991 totals $333,000 and includes $150,000 for a moorage/refueling facility, $80,000 to replace the fuel dispensing system, $46,000 to replace boats, $25,000 to replace hazard bouys, $12,000 for vehicles, $10,000 to replace ADP equipment, and $10,000 to replace miscellaneous project equipment.

Extraordinary maintenance for fiscal year 1991 totals $85,000 and includes $25,000 for road repairs, $20,000 to landscape the administrative center, $20,000 for picnic site and trail improvements, $10,000 for beach sand, and $10,000 for repairs to the water treatment plant.

The increase of $374,000 includes increases of $233,000 in replacements and additions, $85,000 in extraordinary maintenance work, and $56,000 in recurring O&M expenses.

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Orland Project	$ 131,000	$ 185,000	$ +54,000

The program of $185,000 provides for operation, routine maintenance, and management of recreation facilities at East Park and Stony Gorge Reservoirs. In fiscal year 1990 this function was turned back to Reclamation by the U.S. Forest Service.

The increase of $54,000 is for salaries, materials, supplies, and equipment in support of recreation mangement activities.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
California-Oregon Klamath Project	$ 575,000	$ 658,000	$ +83,000

The program of $658,000 provides for operation and routine maintenance of three storage dams and reservoirs which provide irrigation water and reduce flows into the reclaimed portions of Tule Lake and the restricted Tule Lake Sumps in the Tulelake National Wildlife Refuge.

Replacements and additions in fiscal year 1991 totals $65,000 and includes $45,000 for a backhoe and $20,000 for miscellaneous replacements for public lands management.

Extraordinary maintenance in fiscal year 1991 totals $10,000 to rip-rap drains under public land management.

The increase of $83,000 includes $65,000 for replacements and additions, $10,000 for extraordinary maintenance, and $8,000 for increased costs of public land management, water marketing, and recreation management activities.

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Colorado			
Collbran Project	$ 1,255,000	$ 1,658,000	$ +403,000

The program of $1,658,000 provides for continued operation and maintenance of the power division consisting of 14 dams and reservoirs, 1 pipeline and 2 powerplants. These facilities are operated for power production.

Replacements and additions for FY 1991 total $347,000 and include $160,000 for a front-end loader, $80,000 to replace governors, $60,000 to replace station-service distribution equipment, $37,000 for miscellaneous work tools and equipment, and $10,000 to replace a Head Level Controller.

Extraordinary maintenance for FY 1991 totals $628,000 and includes $227,000 to complete the repair of Big Creek Dam, $264,000 to continue to repair Cottonwood Dam No. 2, $111,000 to complete repair of Big Meadows, $20,000 to continue the repair of Atkinson Dam, and $6,000 to complete the painting of the powerplants.

The increase of $403,000 includes $119,000 for increased land management activities, $245,000 for replacements and additions, $79,000 for increased recurring O&M expenses, and partially offset by $40,000 for extraordinary maintenance.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Colorado			
Eastern Colorado Projects	$10,930,000	$ 8,454,000	$-2,476,000

The program of $8,454,000 provides for continued operation and maintenance of the facilities of the Colorado-Big Thompson and Fryingpan-Arkansas Projects. The projects are integrated into a transmountain water diversion system. The Colorado-Big Thompson Project diverts approximately 260,000 acre-feet of water to project lands. The Northern Colorado Water Conservancy District apportions the water used for irrigation to more than 120 ditches and 60 reservoirs. Eleven communities receive M&I water, and electric power is produced by 6 powerplants. The Fryingpan-Arkansas Project consists of 6 dams and reservoirs, 16 diversion structures, and the Mt. Elbert Powerplant and Switchyard.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Eastern Colorado Projects (continued)			

Replacements and additions for FY 1991 total $240,000 and includes $150,000 to rewind pump motors at Granby; $50,000 for 13.8-Kv breakers at Flatiron; and $40,000 for excitation system at Flatiron Powerplant.

Extraordinary maintenance for FY 1991 totals $75,000 and includes $50,000 for concrete slabs at Charles Hansen Canal and $25,000 to replace project VHF radios.

The decrease of $2,476,000 reflects $2,358,000 for replacements, additions, and extraordinary maintenance; $55,000 for support services, $29,000 for contract services, and $34,000 resulting from additional contributions by the Northern Colorado Water Conservancy District which reduces Federal obligations.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Grand Valley Unit, CRSCP	$ 286,000	$ 295,000	$ +9,000

The program of $295,000 provides for operation and basic maintenance of portions of the West End Government Highline Canal and completed laterals for Salinity Control purposes. Operation of project acquired mitigation land for Fish and Wildlife purposes will also be accomplished.

The increase of $9,000 is for an increase of costs for operation and maintenance of completed laterals $51,000 and a decrease of costs of operation and maintenance of project acquired mitigation lands $42,000.

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Paradox Valley Unit, CRBSCP	$ 227,000	$ 160,000	$ -67,000

The program of $160,000 provides for operation and routine maintenance of a brine-well field, treatment facilities, and an injection well with associated pipelines and pumps. The purpose of this program is salinity control.

The decrease of $67,000 reflects a revision in estimated costs required for the operation and maintenance during the completion of the two-year test of the injection well to determine the feasibility of this alternate method of brine disposal. This decrease includes $19,000 for contracted services, $10,000 for materials and supplies, and $38,000 for support services.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
San Luis Valley Project, Conejos Division	$ 72,000	$ 173,000	$ +101,000

The program of $173,000 provides for continued operation and maintenance of Platoro Dam and Reservoir which provides recreation benefits and regulates the water supply for 81,000 acres of irrigated land in the Conejos Water Conservancy District. Platoro Dam also provides flood control by storing floodwaters of the Conejos River for release when normal flow falls below irrigation requirements.

Replacements and additions for FY 1991 total $100,000 which provides for automation of the outlet works.

The increase of $101,000 is for additions.

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
San Luis Valley Project, Closed Basin Division	$ 1,541,000	$ 1,601,000	$ +60,000

The program of $1,601,000 provides for operation and maintenance of 183 salvage wells, 105.6 miles of laterals, 41.6 miles of main canals, and 139.9 miles of transmission lines comprising the Closed Basin Division of the San Luis Valley Project, Colorado. The project purpose is to salvage and regulate water non-beneficially used in the Closed Basin and deliver water to the Rio Grande. The project will help the United States to meet its obligation to Mexico under the May 1906 Treaty and the Rio Grande Compact, and will provide additional water for use in Colorado, and supply water to the Alamosa National Wildlife Refuge and the Russell Lakes Wildlife Management Area.

Replacements and additions in FY 1991 total $20,000 and includes $15,000 for vehicles and $5,000 for miscellaneous work equipment.

The increase of $60,000 includes $325,000 for contracted services; partially offset by a decrease of $128,000 for salaries, $89,000 for support services, and $48,000 for replacements and additions.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Idaho Boise Area Project	$ 3,230,000	$ 3,093,000	$ -137,000

The program of $3,093,000 provides for the operation and maintenance of 4 storage dams and reservoirs, 2 powerplants, 2 diversion dams, and recreation areas on 3 reservoirs. The project provides irrigation water, hydroelectric power, flood control, recreation, fish and wildlife, and land resources management benefits

Replacements and additions in fiscal year 1991 total $421,000 and include $100,000 for uprate design at Black Canyon Powerplant; $100,000 for design of Southern Idaho powerplant automation; $77,000 for replacement and addition of miscellaneous work tools and equipment; $75,000 for backhoe to be used projectwide, $35,000 for replacement of fuel

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Boise Area Project (continued)			

tank at Black Canyon Dam and Reservoir; $20,000 for purchase of security system at Black Canyon Powerplant; $10,000 for updating of various hydromet stations throughout the project; and $4,000 for fuel tank replacement at Cascade Dam and Reservoir.

Extraordinary Maintenance in fiscal year 1991 totals $112,000 and includes $44,000 for modifications necessary for handicap access to project facilities; $27,000 for continuation of spillway repair at Arrowrock Dam and Reservoir; $10,000 for communications cable repair at Anderson Ranch Powerplant; $10,000 for PCB oil purification at Anderson Ranch Powerplant; $10,000 for removal of miscellaneous hazardous wastes; $6,000 for repair of powerhouse roof at Anderson Ranch Powerplant; and $5,000 for domestic water system replacement at Black Canyon Dam and Reservoir.

The decrease of $137,000 includes $452,000 for extraordinary maintenance, partially offset by increases of $105,000 in replacements and additions, $151,000 in routine operating expenses, $40,000 for miscellaneous service contracts, $10,000 for noxious weed control program, and $9,000 for materials and supplies.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Idaho-Wyoming			
Minidoka Area Project	$11,303,000	$14,764,000	$+3,[illegible]61,000

The program of $14,764,000 provides for the operation and maintenance of 7 multipurpose dams and reservoirs, 2 powerplants, 2 wildlife mitigation areas, and recreation areas on 3 reservoirs. The project provides irrigation water, hydroelectric power, flood control, recreation, fish and wildlife, and land resources management benefits.

Replacements and additions in FY 1991 total $10,035,000 and includes $5,481,000 for award of contracts, design, and administrative expenses related to replacing the Minidoka Powerplant Units; $3,770,000 for the initiation of the uprate of Palisades Powerplant; $450,000 for construction of fish screens on the South Fork of the Snake River; $183,000 for continuation of the American Falls erosion control work; $110,000

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Minidoka Area Project (continued)			

for replacement and addition of miscellaneous work tools and equipment; $25,000 upgrade of projectwide hydromet equipment; and $16,000 for replacement of fuel tank at Ririe Dam and Reservoir.

Extraordinary maintenance in FY 1991 totals $217,000 and includes $150,000 for turbine overhaul at Palisades Powerplant; $28,000 for spillway repair at American Falls Reservoir; $27,000 for rehabilitation of stoplog bays and piers at Minidoka Dam; $8,000 for bulkhead installation at American Falls; and $4,000 for roofing of Government houses at Palisades Dam and Reservoir.

The increase of $3,461,000 includes $3,721,000 for replacements and additions, $110,000 for routine operating expense, $5,000 for materials and supplies, partially offset by a decrease of $375,000 in extraordinary maintenance.

Montana			
Hungry Horse	$ 6,594,000	$ 4,176,000	$-2,418,000

The program of $4,176,000 provides for continued operation and maintenance of Hungry Horse Dam, Reservoir, and Powerplant. The project provides hydroelectric power, flood control, fish and wildlife, and recreation benefits.

Replacements and additions total $1,572,000 in fiscal year 1991 and include $700,000 to continue the rewind and uprate of the powerplant generators, $250,000 for plant automation equipment, $150,000 for replacement of PCB transformers, $150,000 for disposal of PCB transformers, $150,000 for replacement of the plant air compressors, $100,000 for plant modernization and unit conditioning, $35,000 for a penstock work platform, $25,000 for a spare heat exchanger, and $12,000 for miscellaneous work tools and equipment.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Hungry Horse (continued)			

Extraordinary Maintenance totals $631,000 and includes $400,000 for replacement of the turbine seal rings, $125,000 to continue work on the overhaul of the powerplant turbines, $48,000 for another generator packing box, $30,000 to continue work on the generator/plant valves and regulators, $12,000 for another generator packing sleeve, $11,000 to continue work on the thrust bearing rebabbiting, and $5,000 to continue work on updating the generator greasing system.

The net decrease of $2,418,000 includes a decrease of $2,593,000 for replacements and additions, a decrease of $51,000 for extraordinary maintenance, partially offset by an increase of $226,000 for recurring operating expenses.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Montana			
Milk River Project	$ 121,000	$ 130,000	$ +9,000

The program of $130,000 provides for operation and maintenance of storage facilities which furnish water to 120,816 acres of irrigated land. Project features include Lake Sherburne, Nelson and Fresno storage dams; one pumping plant; 200 miles of canals; 219 miles of laterals; and 293 miles of drains. The project serves eight irrigation districts.

Replacements and additions for FY 1991 totals $30,000 for automation equipment on the St. Marys Canal.

The increase of $9,000 includes $11,000 in materials and supplies; partially offset by a decrease of $2,000 in replacements, additions, and extraordinary maintenance.

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Montana, South Dakota, North Dakota, Wyoming, Kansas, Nebraska, Colorado, Oklahoma, Texas			
Missouri Basin Area, P-SMBP	$19,961,000	$17,050,000	$-2,911,000

Montana - The projects in Montana include Canyon Ferry Unit, Yellowtail Unit, East Bench Unit, Helena Valley Unit, and Lower Marias. This consists of 4 dams, 2 powerplants, and 1 pumping plant. The total budget for Montana projects totals $7,272,000.

South Dakota - Projects in South Dakota include Angostura, Keyhole, Pactola, and Shadehill Units. These projects consist of four dams and reservoirs, and are primarily for storage of irrigation water. Other benefits include fish and wildlife, recreation, and flood control. Total budget for South Dakota projects is $252,000.

North Dakota - North Dakota projects include Heart Butte, Dickinson, and Jamestown Units. This consists of three storage dams and reservoirs with benefits of irrigation, M&I water, fish and wildlife, recreation, and flood control. Total budget for North Dakota projects is $395,000.

Wyoming - Wyoming projects include the North Platte Project, Kendrick Project, Kortes Unit, Glendo Unit, Buffalo Bill Dam and Reservoir, Shoshone Project, Boysen Unit, and Riverton Unit. The project consist of 9 dams and reservoirs, 10 powerplants, and the Shoshone Canyon Conduit. The facilities are operated for the benefit of irrigation, hydroelectric power, flood control, recreation, and fish and wildlife. The total Wyoming projects budget is $8,876,000.

Colorado - Funds budgeted in FY 91 are for recreation management and cultural resource activities at the following Colorado lakes and reservoirs: Carter Lake, East Portal Reservoir, Flatiron Reservoir, Green Mountain Reservoir, Horsetooth Reservoir, Lake Estes, Lake Granby, Marys Lake, Pinewood Lake, Shadow Mountain Lake, Willow Creek Reservoir, Pueblo Reservoir, Ruedi Reservoir, Turquoise Lake, Twin Lakes Reservoir, and Pueblo Reservoir. Total Colorado projects budget is $35,000.

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)

Missouri Basin Area, P-SMBP (continued)

Kansas-Nebraska - Kansas-Nebraska projects include the Frenchman-Cambridge Division, Bostwick Division, Cedar Bluff Unit, Kirwin Unit, Webster Unit, Almena Unit, and Glen Elder Unit. Facilities operated and maintained include eleven dams and reservoirs for the benefit of irrigation, flood control, fish and wildlife, and recreation. Total Kansas-Nebraska projects budget is $1,482,000.

Oklahoma - Funds programmed in FY 91 are for contract oversight activities for recreation management in the following areas: Altus Dam and Reservoir, Thunderbird Reservoir, Tom Stead Reservoir, Cheney Dam and Reservoir, Fort Cobb Dam and Reservoir, Foss Dam and Reservoir, and McGee Creek Dam and Reservoir. Funds are also scheduled for cultural resources activities for the purpose of conducting reservoirwide surveys. Surveys will be conducted on Fort Cobb Dam and Reservoir and Foss Dam and Reservoir. Total Oklahoma budget is $70,000.

Texas - Funds programmed in FY 91 are for contract oversight activities for recreation management in the following areas: Twin Buttes Dam and Reservoir, Choke Canyon Dam and Reservoir, Lake Meredith, and Lake Texana. Funds are required to cover recreation and cultural resource activities. Total Texas budget is $88,000.

Replacements and additions for fiscal year 1991 total $1,838,000 and include $692,000 for unit regulator/exciter, $229,000 for completing repair of Pathfinder Outlet works, $213,000 for needle valves, $125,000 for powerplant automation, $100,000 for Reclamation's share of switchyard transformer, $100,000 for security systems at Heart Mountain and Boysen powerplants, $67,000 for Alcova crane control upgrade, $30,000 for handicap access, and various miscellaneous contracts for replacements and additions amounting to $282,000.

Extraordinary maintenance for FY 91 totals $278,000 and includes $175,000 for repair of remote control system, $35,000 to recondition the Yellowtail stoplogs, $33,000 for sand filters and water main, $20,000 for upgrading the Heart Mountain crane, and $15,000 for Helena Valley Pumping Plant overhaul.

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Missouri Basin Area, P-SMBP (continued)			

The decrease of $1,774,000 includes $1,170,000 in replacements and additions, $920,000 for contract services, and $52,000 in extraordinary maintenance items; partially offset by increases of $192,000 for increased salaries expenses, and $176,000 for materials and supplies.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
New Mexico Brantley Project	$ 251,000	$ 258,000	$ +7,000

The program of $258,000 provides for continued operation and maintenance of Brantley Dam and Reservoir, and the fish and wildlife mitigation areas. The dam and reservoir will provide flood control storage not presently available and eliminates the threat of failure because of inadequate spillways at McMillan and Avalon Dams. Other primary functions of the project include irrigation, safety of dams, recreation, and fish and wildlife.

Replacements and additions for FY 1991 total $15,000 for work tools and miscellaneous equipment.

The increase of $7,000 is for miscellaneous replacements and additions.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
New Mexico Carlsbad Project	$ 27,000	$ 38,000	$ +11,000

The program of $38,000 provides for continued operation and maintenance of facilities associated with Sumner Dam and Lake Sumner. Project features also include McMillan Dam, Avalon Dam, and a 210.5 mile distribution and drainage system to irrigate 25,055 acres in the Carlsbad Irrigation District and 6,320 acres in the Fort Sumner Irrigation District. Sumner Dam and Lake Sumner provided irrigation, flood control, and recreation benefits. Reclamation is reimbursed by the water users for O&M of the irrigation facilities.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Carlsbad Project (continued)			

Replacements for FY 1991 include $2,000 for miscellaneous replacements and additions.

The increase $11,000 includes $10,000 for a Land Resources Management, $6,000 for replacements and additions; offset by a decrease of $5,000 in recurring operating costs.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
New Mexico			
Middle Rio Grande Project	$ 8,764,000	$ 7,279,000	$-1,485,000

The program of $7,279,000 provides for continued operation and maintenance of El Vado Dam and Reservoir, channelization of 149 miles of the Rio Grande River, and O&M of the 57 mile long low-flow channel. The irrigation and drainage features of the project are operated and maintained by the Middle Rio Grande Conservancy District and include 3 diversion dams, 202 miles of canals, 580 miles of laterals and 405 miles of drains.

Replacements and additions for FY 1991 total $632,000 and include $500,000 for water salvage drains; $67,000 for miscellaneous computer equipment, $50,000 for miscellaneous tools and equipment; and $15,000 for Los Alamos County additions.

Extraordinary maintenance for FY 1991 totals $1,853,000 and includes $600,000 for the rehabilitation of the San Marcial Reach of the low-flow conveyance channel; $706,000 for the rehabilitation of the Low-flow conveyance channel; $500,000 for the Rehabilitation of the Low-Flow Structures; $35,000 to rent two rock trucks; and $12,000 to rent a loader.

The decrease of $1,485,000 includes $1,988,978 for extraordinary maintenance; $487,743 for replacements and additions; partially offset by increased costs to operate and maintain the project $866,721; and $125,000 to begin a land management program.

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
New Mexico-Texas Pecos River Basin Water Salvage	$ 296,000	$ 270,000	$ -26,000

The program of $270,000 supports a continuing program to reduce the non-beneficial consumptive use of water in the Pecos River Basin between the headwaters of the Pecos River in New Mexico and Girvin, Texas, by maintaining 53,800 acres of previously cleared land. This ongoing operation and maintenance work involves a phreatophyte eradication and management program.

Replacements and additions for FY 1991 total $2,000 for miscellaneous work, tools, and equipment.

The decrease of $26,000 is due to a decrease in recurring operation and maintenance expense.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
New Mexico-Texas Rio Grande Project	$ 2,573,000	$ 3,639,000	$ +1,066,000

The program of $3,639,000 provides for continued operation and maintenance of 2 dams and reservoirs, a hydroelectric plant, and 6 diversion dams. Other activities include administration of an international water treaty with Mexico, land and recreation management, and phreatophyte control activies. Benefits of the project include irrigation, flood control, recreation, and power. Other major features include 141 miles of canal, 462 miles of laterals, and 457 miles of drains which are operated and maintained by water users.

Replacements and additions for fiscal year 1991 total $491,000 and include $75,000 to replace underground fuel storage tanks; $41,000 to replace worn out tools and equipment; $40,000 for a cooperative flow measurement program; $20,000 for a work boat; $25,000 for computer equipment; $15,000 for a ground water study; $10,000 for portable water pumps; $175,000 for penstock closing system; $240,000 for 2 crawler tractors, and $100,000 for a crawler tractor blade.

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Rio Grande Project (continued)			

Extraordinary maintenance for FY 1991 is $484,000 for generator rewind and overhaul.

The increase of $1,066,000 includes $970,000 for support services, and $226,000 for generator rewind, partially offset by $130,000 decrease in replacement and additions.

Nevada-California			
Washoe Project	$ 389,000	$ 366,000	$ -23,000

The program of $366,000 provides for operation and routine maintenance of 2 dams and reservoirs, 1 diversion dam, and 1 powerplant. The reservoirs are regulated to provide a water supply for fishery purposes in the lower Truckee River Basin and for flood control.

The decrease of $23,000 includes $31,000 for extraordinary maintenance items at Stampede Powerplant partially offset by an increase of $8,000 in recurring operating expenses.

Oklahoma			
McGee Creek Project	$ 233,000	$ 330,000	$ +97,000

The program of $330,000 provides for continued reimbursement to the Oklahoma Department of Wildlife and Conservation and the Oklahoma Tourism and Recreation Department for operation and maintenance of the Wildlife Management Area and the Natural Scenic Recreation Area, and a contract with the McGee Creek Authority for flood control operations. The project consists of McGee Creek Dam and Reservoir, water conveyance facilities, public recreation facilities, and a scenic recreation area. The project provides a M&I water supply of 71,800 acre-feet annually for Oklahoma City and surrounding communities and 165,000 acre-feet for flood control, recreation, and fish and wildlife enhancement.

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
McGee Creek Project (continued)			

The increase of $97,000 is for contract services on wildlife management for $34,000, recreation management for $10,000, flood control operations for $35,000, and $18,000 for recurring O&M expense.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Oklahoma			
Washita Basin Project	$ 21,000	$ 35,000	$ +14,000

The program of $35,000 provides for continued reimbursement to Foss Master Conservancy District for continued operation and maintenance of facilities at Foss Dam and Reservoir associated with flood control. Principal features include Foss Dam and Reservoir, Fort Cobb Dam and Reservoir, and water conveyance facilities. The Foss Reservoir provides an M&I water supply of 20,681 acre-feet annually for five surrounding cities, 425,000 acre-feet for flood control, and 10,800 acres of land/water surface area for recreation, and 11,800 acres of land/water surface area for fish and wildlife.

Increase of $14,000 required to provide monitoring and assistance during flood control operations.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Oregon			
Crooked River	$ 318,000	$ 133,000	$ -185,000

The program of $133,000 provides the Federal share of operation and maintenance costs of the multipurpose Ochoco Dam and Reservoir and Arthur R. Bowman Dam and Prineville Reservoir. These facilities are operated under contract by the Ochoco Irrigation District. Provides for maintenance of the hydromet system for flood control forecasting and recreation management costs of the areas of Prineville Reservoir.

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Crooked River (continued)			

Replacements for FY 1991 total $3,000 for miscellaneous equipment such as data collection platforms, solar panels, remote sensing devices, etc., which are worn out, obsolete, or have been vandalized.

The decrease of $185,000 includes $194,000 for repair of basic recreation facilities at Prineville Reservoir; partially offset by an increase of $6,000 for support costs related to recreation management, $2,000 for additional hydromet system maintenance costs, and $1,000 for increased charges of the U.S. Geological Survey for cooperative streamgauging.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Oregon			
Deschutes	$ 50,000	$ 65,000	$ +15,000

The program of $65,000 provides for the maintenance of the hydromet system for flood control forecasting and for reimbursement to the U.S. Forest Service for management of the recreation areas in the Reclamation zone at Haystack Reservoir.

Replacements for fiscal year 1991 total $3,000 for miscellaneous replacements for the hydromet system.

The increase of $15,000 includes $11,000 in routine operation and maintenance expense for recreation management, and $4,000 for maintenance of the hydromet system.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Rogue River Basin, Talent Division	$ 335,000	$ 324,000	$ -11,000

The program of $324,000 provides for continued operation and routine maintenance of the Green Springs Powerplant; the Federal share of the operation and maintenance of the joint use storage and canal facilities consisting of seven dams and reservoirs and

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Roque River Basin, Talent Division (continued)			

associated canal works operated by the Talent Irrigation District, and for the operation and maintenance of the Hydromet system for water and flood control forecasting.

Replacements and additions for fiscal year 1991 total $10,000 for miscellaneous replacements of worn out tools and equipment.

The decrease of $11,000 in FY 1991 includes $60,000 in replacements and additions partially offset by an increase of $32,000 in maintenance costs for additional hydromet facilities and $17,000 for routine operation and maintenance costs.

Tualatin	$ 47,000	$ 50,000	$ +3,000

The program of $50,000 covers the Federal share of the operation and maintenance costs of Scoggins Dam and Henry Hagg Lake which is performed under contract with the Tualatin Valley Irrigation District. The project provides irrigation, municipal and industrial water, flood control, fish and wildlife, recreation, and water quality control benefits.

The increase of $3,000 is due to routine operating expenses.

Owyhee	$ 480,000	$ 255,000	$ -225,000

The program of $255,000 provides for completion of the needle valve replacement program at Owyhee Dam. This is in conjunction with the reclamationwide needle valve replacement program and the total cost of the program will be repaid by water users under a repayment contract.

The decrease of $225,000 is due to completion of the work in fiscal year 1991.

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Umatilla Project	$ 520,000	$ 178,000	$ -342,000

The program of $178,000 provides for the operation and maintenace of McKay Reservoir which is regulated for irrigation and flood control.

Replacements for FY 1991 include $1,000 for routine miscellaneous equipment.

Extraordinary maintenance for FY 1991 totals $62,000 for installatin of jet-flow gates at McKay Dam.

The decrease of $342,000 includes $354,000 for extraordinary maintenance; partially offset by increases of $8,000 for land resources management, $3,000 in routine operating costs, and $1,000 in materials and supplies.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Vale	$ 155,000	$ -0-	$ -155,000

The program for replacing the needle valves at Agency Valley Dam with jet-flow gates completes in fiscal year 1990. The total cost of this program will be repaid by water users under a repayment contract.

The decrease of $155,000 is due to completion of the needle valve replacement program in FY 1990.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Oklahoma			
W.C. Austin, Altus Dam	$ -0-	$ 35,000	$ +35,000

The program of $35,000 provides for reimbursement costs to the Lugert-Altus Irrigation District for flood control operation and maintenance cost on Altus Dam and for oversight by the Bureau of Reclamation.

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Utah			
Provo River	$ 188,000	$ 138,000	$ -50,000

The program of $138,000 provides for continued operation and maintenance of the Deer Creek Powerplant and land resources management activities. This powerplant has two generating units with a capacity of 4,950 kW per year. The purpose of this facility is power production.

Extraordinary maintenance work for FY 1991 totals $4,000 for a switchyard fused disconnect switch.

The decrease of $50,000 includes $63,000 for extraordinary maintenance work; partially offset by an increase of $13,000 for land management activities.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Washington			
Columbia Basin Project	$27,943,000	$32,940,000	$+4,997,000

The program of $32,940,000 provides for continued operation and maintenance of 3 storage dams and 2 reservoirs which are regulated for power, irrigation, flood control, navigation, recreation, fish and wildlife benefits, and fish flows. The program also includes operation and maintenance of 3 Grand Coulee powerplants, 1 pump/generating plant, with a combined generating capacity of 6,480,000 kilowatts, and their associated switchyards, transmission lines, and feeder canal.

Replacements and additions for FY 1991 total $4,443,000 and include $1,500,000 for Fire Safety Modifications; $1,109,000 for miscellaneous replacements; $727,000 for Pump Wheel; $440,000 for electric heaters, $282,000 for miscellaneous additions; $75,000 for Work Platform, pump generating plant; $75,000 for Office Equipment, 65,000 for Vehicles; $50,000 for Stator Windings P1/P2; $50,000 for MU G1-18 Transformers, Phase III; $35,000 for surface drains, P1-P/G 12; and 2 minor contracts for replacements and additions amounting to $35,000.

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)

Extraordinary maintenance for FY 1991 totals $5,687,000 and includes $1,000,000 for main unit protective relays; $1,000,000 for FDR Lake debris cleanup; $867,000 for generators 1-18 turbine overhaul; $500,000 for protective relays for pumps 1-6; $400,000 for replace station-service power cables between left and right powerplants; $350,000 for electronic voltage regulators, generator units 1-18 and left switchyard; $265,000 for 102-inch ring seal gate repairs; $265,000 for downstream stabilization monitoring equipment maintenance; 9 minor contracts for extraordinary maintenance amounting to $204,000; $200,000 for replace 120V distribution panels, left and right powerhouses and dam; $135,000 for visitor route enhancements; $136,000 for right powerhouse elevator modifications; $100,000 for fuel system modifications; $60,000 for repaint main generator room, pump generating plant; $45,000 for administration building roof repair; $40,000 for 480V power distribution circuit breakers; $40,000 sealing warehouse A&B floors; $40,000 modification of shot blast building; and $40,000 for rewedge main unit stators.

The increase of $4,997,000 includes $2,247,000 for recurring O&M expenses; $2,096,000 for extraordinary maintenance; $579,000 for replacements and additions; and $75,000 for materials and supplies.

Yakima Project	$ 5,114,000	$ 5,691,000	$ +577,000

The program of $5,691,000 provides for the operation and maintenance of the storage division consisting of six dams and reservoirs which are regulated for irrigation, flood control, and anadromous fishery production. Also includes the operation and maintenance of Roza Powerplant and the Chandler Power and Pumping Plant and their associated switchyards, transmission lines, and canals; the hydromet system for water and flood control forecasting; and operation of the newly constructed fish ladders and screens.

Replacements and additions for fiscal year 1991 total $770,000 and include $260,000 to add automated trash rakes to the Chandler fish screen site and the Sunnyside fish screen site, $200,000 to complete replacement of the project radio system, $146,000 to replace miscellaneous project equipment, $144,000 to replace vehicles which meet age and mileage requirements, and $20,000 to replace two underground fuel storage tanks.

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Yakima Project (continued)			
	Extraordinary maintenance for fiscal year 1991 totals $615,000 and includes $369,000 for replacement of the control tower at the Bumping Lake Dam, $70,000 to rehabilitate Kachess regulating gates, $65,000 to rehabilitate the drum gates on Tieton Dam, $61,000 to provide contract administration on the various construction contracts, and $50,000 to provide design work for rebuilding the Chandler canal bank from the headworks to the fish screen site. The increase of $577,000 includes $323,000 in routine operation and maintenance expenses, $127,000 for extraordinary maintenance, $113,000 in replacements and additions, and $14,000 in materials and supplies.		
Subtotal - O&M PROJECTS	$184,603,000	$202,381,000	$+17,778,000

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
ASSOCIATED O&M PROGRAMS			
Various States			
Administration of Environmental Initiatives	$ -0-	$ 560,000	$ +560,000

This is a new associated O&M program for FY 1991. Under this program, Reclamation will develop control plans and procedures; audit plans, procedures, and operations; and identify deficiencies and take appropriate corrective actions. This program will also provide regulatory guidance and administrative oversight to the regional offices for development and management, inventorying, cleanup, and/or replacement of leaking underground storage tanks; management of replacing PCB contaminated equipment; and elimination of unauthorized dumping of hazardous waste on Reclamation controlled lands.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Administration of Recreation and Fish and Wildlife Initiatives	$ -0-	$ 525,000	$ +525,000

This is a new associated O&M program in FY 1991. This program will focus on the design, construction, and management of natural, restored, and artificially designed fish and wildlife habitats. Evaluate impacts of existing projects operations on wetlands and endangered species habitat. Develop criteria for studies of future projects to be initiated to restore wetlands. The program will identify areas which must be improved to meet the public recreational needs. Under this program, partnerships will be entered into with various public and private entities to enhance recreation and fish and wildlife resources stewardship.

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Departmental Irrigation Drainage Program	$ 789,000	$2,524,000	$+1,735,000

The program of $2,524,000 will provide continued funding of Reclamation's share of the nationwide study to identify and address irrigation-induced water quality problems involving Interior's responsibilities in the 17 Western States. This program is an outgrowth of Departmental and Congressional concerns relating to trace element contamination problems at Kesterson Reservoir in the San Joaquin Valley of California. The objective of this program is to determine if significant contamiantion problems related to irrigation drainage exist outside the San Joaquin Valley and to determine appropriate remedial measures.

The increase of $1,735,000 provides funding for identification and evaluation of remedial action alternatives and limited additional data collection at four locations identified for further study.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Examination of Existing Structures Program	$12,228,000	$ 374,000	$-11,854,000

The program of $374,000 will provide for continued installation of emergency warning systems, continuation of the Review-of-Maintenance program, and needle valve replacement investigations to ensure the safety of existing structures.

The decrease of $11,854,000 is the result of the realignment of functions within the Denver Office due to the reorganization of Reclamation. Activities removed from this title are now performed under Safety Evaluation of Existing Dams and other associated O&M programs.

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
O&M Resources Optimization	$ 94,000	$1,000,000	$ +906,000

Previously Examination of Systems Operations Program. The program focuses on evaluating data and analysis required for real-time operation, water conservation and management techniques, alternative water use and operating procedures to meet environmental needs; and computer software for an expert system to assist engineers in the decision-making process.

The increase of $906,000 is the result of the realignment of functions within the Denver Office due to the reorganization of Reclamation.

Land Resources Management Program	$3,268,000	$4,836,000	$+1,568,000

The program of $4,836,000 will allow Reclamation to continue good stewardship of land resources under its control. The program provides for oversight and support services for developing land use plans and to facilitate the proper management of Reclamation lands administered by other agencies and interests. This work includes liaison with cooperating recreation, fish and wildlife, and other land management entities to ensure that the related contractual arrangements are adequately administered. In addition funds will be used to fulfill direct O&M work required to protect resources on lands where it has not been possible to secure management by a capable administering agency and for hazardous waste management on Reclamation lands.

The increase of $1,568,000 provides for additional emphasis on hazardous waste management and preparation of land use plans.

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Miscellaneous Flood Control Operations Program	$ 499,000	$ 716,000	$ +217,000

The program of $716,000 provides for such activities as measuring rainfall, streamflows, gate positions, and waterpressure under dams.

The increase of $217,000 is due to additional hydromet system maintenance costs performed by other entities and increased Geological Survey streamgauging costs.

Negotiation and Administration of Water Marketing Contracts	$ 39,000	$ 40,000	$ +1,000

The program of $40,000 provides for administration of repayment contracts and operational studies for water marketing purposes.

Power Program Services	$ 738,000	$ 500,000	$ -238,000

The program of $500,000 provides for such activities as a Bureauwide overview of the power O&M activities, by providing technical guidance and assistance to Regional Offices and projects to assure that practices and procedures are consistent with sound engineering and business practices, by recommending corrective actions and/or adjustments to stated policy, and by eliminating unproductive outdated activities.

The decrease of $238,000 is due to a reanalysis of requirements to develop and distribute Power O&M technical guidelines, standards, procedures, and safety instructions for the Reclamation-wide operations improvement program.

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Public Safety - Reclamation Facilities	$2,148,000	$2,953,000	$ +805,000

This program will establish acceptable standards to identify potential and existing safety hazards at Reclamation facilities, provide for construction or installation of safety measures necessary to minimize risk of personal injury and loss of life, provide for implementation of handicapped access program where no program/project budget exists, and to reduce the liability to the operating entities and to Reclamation.

The increase of $805,000 additional fencing, barricades, signs to deny access to hazardous areas of the projects.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Reclamation Law Administration	$3,808,000	$3,702,000	$ -106,000

The program of $3,702,000 involves administration of Reclamation Law. This includes activities necessary to comply with the Reclamation Reform Act of 1982, such as land classification/equivalency determinations, field audit and compliance checks, water user certification of compliance with legal requirements, and fieldwork data gathering under the Acreage Limitation Program.

The decrease of $106,000 reflects a revised estimate of funding requirements.

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Safety Evaluation of Existing Dams Program	$ -0-	$9,000,000	$+9,000,000

This program was previously included under the Examination of Existing Structures Program. Separate identification of this program is the result of the realignment of functions of the Denver Office due to the reorganization of Reclamation. This program provides for the identification of dam safety problems, analysis of identified dam safety deficiencies, preparation of corrective action proposals, and instrumentation installation in Reclamation dams operated by other entities.

Soil and Moisture Conservation Program	$ 876,000	$ 1,135,000	$ +259,000

The program of $1,135,000 provides for administration of the Soil and Moisture Conservation Program in accordance with Reclamation's "good neighbor" policy and covers only those activities where the benefits are of a nonreimbursable nature, such as erosion control on Reclamation lands and for fire protection on lands withdrawn for future project purposes.

The increase of $259,000 provides funds to complete 5 erosion control measures and to begin work on 12 additional sites.

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Water Manangement and Conservation Program	$ 225,000	$ 850,000	$ +625,000

The program of $850,000 provides for the coordiation of water management and conservation efforts with the water users and other agencies, and rehabilitation and betterment studies on existing Reclamation projects.

The increase of $625,000 provides for increased emphasis on coordination of water quality, water management, and water conservation efforts with the water users and other agencies.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Water Program Services	$ -0-	$ 420,000	$ +420,000

This program was previously included under the Examination of Existing Structures Program. Separate identification of this program is the result of the realignment of functions within the Denver Office due to the reorganization of Reclamation. The program provides the centralized overview and coordination activities to ensure that safe practices and procedures are followed, and that Federal investments for Reclamtion irrigation and major water conveyance facilities are protected

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Subtotal - ASSOCIATED O&M PROGRAMS	$ 24,712,000	$ 29,135,000	$ +4,423,000
TOTAL - PROJECTS/PROGRAMS	$209,315,000	$231,516,000	$+22,021,000

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Revenue Financed Operation and Maintenance Programs			
Arizona-Nevada			
Colorado River Basin Project			
Central Arizona Project	$93,520,000	$96,221,000	$ +2,701,000

The program of $96,221,000 provides for continued operation and maintenance of the Navajo Generating Station and completed portions of the Central Arizona Project aqueduct system. Also provides for initial operation and maintenance costs associated with a portion of the Tucson Aqueduct. These facilities are operated for power production, irrigation, M&I water, flood control, and recreation. The Federal entitlement at the Navajo Generating Station is 546,750 kilowatts of power.

New items in the FY 1991 program include $1,295,000 for initial operation and maintenance of two pumping plants and a portion of the Tucson Aqueduct.

The increase of $2,701,000 includes $1,357,000 for additional interest payments to the Federal Treasury, $1,295,000 for O&M of two additional pumping plants and a portion of the Tucson Aqueduct, and $49,000 for maintenance of additional microwave sites that serve the Tucson Aqueduct pumping plants.

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Colorado			
Colorado River Storage Project:			
Miscellaneous Flood Control Operations	$ 32,000	$ -0-	$ -32,000
	This program provides for operation and maintenance of facilities and equipment related to flood control on the Paonia, Florida, and Dallas Creek Projects. The program is being financed from appropriated funds beginning in FY 1991.		
Dolores Project	$ 56,000	$ 57,000	$ +1,000
	The program of $57,000 provides for operation and maintenance activities related to fish and wildlife and flood control. The use of these revenues also covers monitoring drainages to establish a data base from which salinity benefits can be computed.		
Colorado-New Mexico			
San Juan-Chama Project	$ 136,000	$ 128,000	$ -8,000
	The program of $128,000 provides for continuing operation and maintenance of two storage dams and reservoirs and water conveyance facilities of the San Juan-Chama Project, a participating project of the Colorado River Storage Project. The project provides an annual diversion of about 110,000 acre-feet of water from the upper tributaries of the San Juan River for use in the Rio Grande River Basin of New Mexico. The project provides M&I water, fish and wildlife, and recreation benefits. Benefiting entities are the City of Albuquerque, City and County of Santa Fe, Village of Los Lunas, Twining Water and Sanitation District, County of Los Alomos, and City of Espanola.		

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
San Juan-Chama Project (continued)			

Supplemental irrigation water is also provided to 89,711 acres in the Middle Rio Grande Conservancy District, and 2,768 acres in the Pojoaque Valley Irrigation District.

Replacements and additions for FY 1991 total $9,000 and include $8,000 to replace a dump truck and $1,000 for miscellaneous work tools and equipment.

Extraordinary maintenance for FY 1991 totals $11,000 and includes $9,000 for repair of Blanco Sluiceway and $2,000 for paving the Chama office yard.

The decrease of $8,000 is due to a reduction in replacements and additions; offset by an increase in extraordinary maintenance.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Utah			
Central Utah Project, Bonneville Unit	$ 10,000	$ 85,000	$ +75,000

The program of $85,000 provides funding for flood control activities on all Bonneville Unit Reservoirs.

The increase of $75,000 is due to pay allocations to flood control and and fish and wildlife activities to the operating entity.

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Central Utah Project (continued)			
Jensen Unit	$ 167,000	$ 95,000	$ -72,000

The program of $95,000 provides for operation and maintenance of recreation facilities and covers flood control activities at Red Fleet Dam and reservoir.

The decrease of $72,000 is due to completion of a contract to chip and seal campgrounds and roads.

Wyoming			
Seedskadee Participating Project	$ 291,000	$ 457,000	$ +166,000

The program of $457,000 provides for continued operation and maintenance of Fontenelle Dam and Reservoir and Powerplant. The project provides M&I water, power, flood control, recreation, and fish and wildlife benefits. The powerplant consists of one 10 kW generator.

Replacements and additions for FY 1991 totals $97,000 and includes $40,000 for visitor's area upgrades, $24,000 for replacement of project vehicles, $20,000 for a farm tractor and $13,000 for miscellaneous tools and work equipment.

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Seedskadee Participating Project (continued)			

Extraordinary maintenance work for FY 1991 totals $85,000 and includes $50,000 for asphalt paving, and $35,000 for recreation area handicap access modifications.

The increase of $166,000 includes $68,000 for replacements and additions, $85,000 for extraordinary maintenance, and $13,000 for recurring O&M expenses.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Arizona, Colorado, New Mexico, Utah, Wyoming Initial Units	$20,058,000	$18,942,000	$-1,116,000

The program of $18,942,000 provides for continued operation and maintenance for the four main stem storage units consisting of six dams and reservoirs which are regulated for irrigation and for flood control. Also included is the O&M of Glen Canyon, Flaming Gorge, Morrow Point, Blue Mesa and Crystal powerplants. Other project benefits are M&I water, recreation, and fish and wildlife.

Replacements and additions for FY 1991 totals $4,735,000 and includes $910,000 for generator uprating at Flaming Gorge Powerplant; $700,000 for water treatment equipment at Glen Canyon Unit; $620,000 for replacement of generator governors at Blue Mesa and Morrow Point Powerplants; $300,000 for a 30-ton crane, $200,000 for transformer replacement, and $200,000 for Visitor Center upgrade at Flaming Gorge; $300,000 for unit circuit breakers at Blue Mesa; $160,000 for security system replacement at the Aspinall Unit; $150,000 for building sandblasting at Glen Canyon; $150,000 for a front end loader and $115,000 for water flow instrumentation at the Aspinall Unit; $100,000 for an equipment storage building and $80,000 for a fire hall

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)

Initial Units (continued)

building for Flaming Gorge; $80,000 for a trailer; $65,000 for a dump truck; $50,000 for a pre-fault oscillograph; $163,000 for tools and work equipment; $131,000 for replacement of project vehicles; and $261,000 for various miscellaneous contracts for replacements and additions.

Extraordinary maintenance work in FY 1991 totals $3,395,000 and includes $1,500,000 for continuing fishery investigations of endangered species; $300,000 for replacement of a water supply line and $300,000 for replacement of electrical line and service at the residential camp at Flaming Gorge; $180,000 for renovating bathrooms and $120,000 for driveway widening at the Blue Mesa and Morrow Point residential camp; $105,000 for Visitor's Center handicap access modifications and $100,000 for control room heat system modifications at Blue Mesa and Morrow Point; $100,000 for a spare power cable at Crystal; $100,000 for metalizing the spillway radial gates, $80,000 for powerplant heat exchanger coils, $80,000 for painting powerhouse interior, and $75,000 for tailrace sandbar removal at Glen Canyon; $75,000 for highscaling; and $280,000 for various recurring O&M expenses.

The decrease of $1,116,000 includes $1,141,000 for replacements and additions and $240,000 for extraordinary maintenance work; partially offset by increases of $155,000 for recurring O&M expenses, $80,000 for materials and supplies, and $30,000 for land management activities.

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Safety Evaluation of Existing Dams	$ 294,000	$ 300,000	$ +6,000
	The program of $300,000 provides for continued safety examinations of existing structures and field investigations for modification decision analysis of dams on the Colorado River Storage Project.		
Consumptive Use Studies	$ 196,000	$ 200,000	$ +4,000
	The Colorado River Storage Project consumptive use studies are required by Public Law 90-537, which directs the Secretary of the Interior to make reports as to the annual consumptive use and losses of water from the Colorado River system after each 5-year period, beginning with the 5-year period starting October 1, 1970. A special provision of the Navajo Project Participating Agreement dealing with construction and operation of the thermal powerplant near Page, Arizona, requires the Secretary to annually report on the uses of water in the Arizona portion of the Upper Colorado River Basin. The Upper Colorado Region prepares both reports.		
Emergency Funds	$ 490,000	$ 500,000	$ +10,000
	The program of $500,000 provides for emergency repair of facilities of the Colorado River Storage Project Units.		
Quality of Water Studies	$ 245,000	$ 250,000	$ +5,000
	The program of $250,000 provides for continued monitoring of salinity in the Colorado River system.		
Subtotal - Colorado River Storage Project	$ 21,975,000	$ 21,014,000	$ -961,000

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
TOTAL - Revenue Financed O&M Programs	$115,495,000	$117,235,000	$ -1,740,000
Permanent O&M Appropriation			
Arizona-Nevada			
Colorado River Dam Fund, Boulder Canyon Project	$ 61,383,000	$ 50,636,000	$-10,747,000
Less Prior Year Authority	-1,339,000	-21,173,000	
New Authority	$ 60,044,000	$ 29,463,000	

The FY 1991 program for the Boulder Canyon Project consists of $29,463,000 in new budget authority and $21,173,000 of prior year authority for regular operation and maintenance of project facilities. The new budget authority includes $17,274,000 available from funds advanced by the power allotees for uprating of the gererating units. The total program of $50,636,000 provides for continuing operation and maintenance of Hoover Dam and Powerplant, and the ongoing uprating of the powerplant generating units. Hoover Dam forms Lake Mead, providing flood control, river regulation, fish and wildlife, M&I water, and recreation benefits. The powerplant provides an annual power generation of about 5.5 billion kWh of low-cost, renewable hydropower which serves various sections of the southwest and the nation as a whole.

Replacements and additions in FY 1991 total $33,373,000 and includes $17,274,000 for the generator uprating program; $6,300,000 for unit circuit breakers; $1,115,000 for Hoover-Mead consolidation; $2,250,000 for needle valve replacements; $1,500,000 for power distribution boards; $900,000 for river telemetry upgrade; $700,000 for additional 8th floor offices; $500,000 for governor receivers; $500,000 for visitor's viewing

Bureau of Reclamation
EXPLANATION OF CHANGES IN PROGRAM REQUIREMENTS
FROM FY 1990 TO FY 1991

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
Boulder Canyon Project (continued)			

platform; $400,000 for station service controls/relays; $400,000 for penstock tunnels lighting system; $300,000 for station service governors; $300,000 for reconditioning of station service units; $268,000 for transportation, shop tools, CAD/computer/ADP, shop testing, and other minor equipment; $200,000 for CO2 panels; $100,000 for butterfly seals/pivot bearings; $100,000 for scanning system/CAD; $90,000 for lightning arrestors; $70,000 for bypass/check valves/piping; $50,000 for machine shop lathe; $30,000 for balancing machine; and $26,000 for thermovision test equipment.

Extraordinary maintenance items in FY 1991 total $3,399,000 and include $1,599,000 for office remodeling; $500,000 for boring machine upgrade; $400,000 for pressure relief valves repair; $400,000 for external painting of drum gates; $400,000 for metal stairs/drainage; and $100,000 for penstock exterior coating.

The decrease of $10,747,000 includes reductions of $9,437,000 for replacements and additions; and $2,886,000 for interest payments to Treasury; partially offset by increases of $499,000 for wageboard compensation due to a negotiated contract; $965,000 for extraordinary maintenance; $62,000 for materials and supplies; and $30,000 for printing expenses.

State and Project	FY 1990	FY 1991	FY 1991 Increase (+) or Decrease (-)
TOTAL - FY 1991 OPERATION AND MAINTENANCE PROGRAM 1/	$384,854,000	$399,387,000	$+14,533,000

1/ Includes $33,165,000 in FY 1990 and $17,274,000 in FY 1991 provided by power allotees for Hoover Powerplant uprating program. However, the total program does not include $12,490,000 in FY 1990 and $13,071,000 in FY 1991 of funds advanced by other entities for recurring operation and maintenance activities.

ITEMIZATION OF ESTIMATES
(In Thousands of Dollars)

Department of the Interior — Bureau of Reclamation

Appropriation Title: Operation and Maintenance

	Estimated 1990	Estimated 1991	Increase or Decrease
Program and Financing:			
Total obligations	224,123	240,803	16,680
Offsetting collections	(90)	(1,144)	(1,054)
Funds advanced by water users	(8,990)	(8,143)	847
Prior Year Funds	(5,728)	0	5,728
Appropriation	209,315	231,516	22,201
Appropriation - Reclamation fund	206,087	225,416	
Appropriation - General fund	6,000	5,900	
Appropriation - Special fund	200	200	
Reduction Pursuant to P.L. 99-177	(2,972)	0	

Object Classification

		Estimated 1990	Estimated 1991	Increase or Decrease
11.0	Personnel Compensation	72,619	76,700	4,081
12.1	Personnel Benefits	12,891	13,994	1,103
13.0	Benefits for Former Personnel	210	237	27
21.0	Travel and Transportation	2,919	3,178	259
22.0	Transportation of Things	1,843	2,007	164
23.1	Rental Payments to GSA	2,300	2,930	630
23.2	Rental Payments to Others	155	209	54
23.3	Communication, Utilities, Miscellaneous	3,163	3,783	620
24.0	Printing	404	441	37
25.0	Other Services	47,668	45,537	(2,131)
26.0	Supplies and Materials	18,929	19,938	1,009
31.0	Equipment	14,533	17,340	2,807
32.0	Lands and Structures	37,445	45,116	7,671
41.0	Grants, Subsidies, and contributions	100	100	0
42.0	Insurance Claims	6	6	0
99.0	Total Obligations	215,185	231,516	16,331

LOAN PROGRAM

General Statement

Summarized Financial Data:

Fiscal Year 1990:		
Appropriation (Reflects Public Law 99-177 reduction of - $478,000)	$33,644,000	
Application of Prior Year Funds	2,823,226	
Total Obligations, Fiscal Year 1990		36,467,226
Non-Federal Participation - Services	267,000	
Total Program, Fiscal Year 1990		$36,734,226
Fiscal Year 1991:		
Estimate of Appropriation	$5,708,000	
Total Obligations, Fiscal Year 1991		5,708,000
Non-Federal Participation - Services	925,000	
Total Program, Fiscal Year 1991		$6,633,000

The Loan Program authority has been provided by Public Laws 84-130 and 84-984. The total program for FY 1991 will continue work on two ongoing loans.

A listing of the projects and activities proposed in FY 1991 compared to FY 1990 is shown on the following page in the "Method of Financing FY 1990 and FY 1991."

FISCAL YEAR 1991

Work Proposed

The appropriation estimate of $5,708,000 would provide for continuation of work on 2 projects. The program also provides for continuation of the administration of the loan program. An explanation of the work in the loan program is provided below.

CONTINUING LOAN PROGRAM

Hidalgo County Irrigation District No. 1 - Supplemental, Hidalgo County, TX (P.L. 84-984)

The project is located in the Lower Rio Grande Valley near the cities of McAllen and Edinburg, Texas. The project facilities will provide 30,565 acres with full-service commercial irrigation and 48,775 acres with supplemental service, and will provide 11,050 acre-feet per year of municipal and industrial water. Work will continue on rehabilitating the intake channel, replacement of deteriorated gas engines with more economical electric motors, repairing the pumping plant building, repairing the discharge tubes, lining 1.4 miles of main canal, replacing 55 miles of open laterals with pipeline, and providing necessary operation and maintenance equipment.

The work will continue in 1991 . . . . $ 2,002,000 1/

1/ Excludes $800,000 in non-federal non-cash contributions

Middle Creek Dam Rehabilitation Project, Gallatin County, MT (P.L. 84-984)

The project, which is located in Gallatin County, Montana, will raise the existing dam embankment, construct an emergency spillway, and rehabilitate the existing service spillway to accommodate the probable maximum flood and meet dam safety standards. Rehabilitation would also provide 15,000 acres of supplemental service and 5,200 acre-feet per year of municipal and industrial water, as well as recreation and wildlife benefits.

The work will complete in 1991 . . . . $ 2,944,000 2/

2/ Excludes $125,000 in non-Federal non-cash contributions

ADMINISTRATION OF THE LOAN PROGRAM

This program is used for investigation of potential loans, negotiation of contracts, and similar activities. These activities are performed prior to the granting of the loan and, therefore, require an independent source of financing. Upon execution of a contract for a loan under this program, all costs incurred on the specific proposal to that time, as well as all future costs, are charged to the organization securing the loan and are repaid as part of the loan. Since the authorizing acts make no provision for the collection of funds spent on unsuccessful applications or on administrative functions not assignable to specific completed loans, a portion of these administrative funds, as well as portion of all previously appropriated funds for this purpose, is considered nonreimbursable.

The program for fiscal year 1991 will provide for the continuation of the administration of the loan program . . . . $ 762,000

Federal Obligations (Reclamation) . . . . $ 5,708,000 1/

1/ Excludes non-Federal non-cash contributions of $925,000.

BUREAU OF RECLAMATION
LOAN PROGRAM

Method of Financing FY 1990 and FY 1991
(In thousands of dollars)

Project and State	Fiscal Year 1990				Fiscal Year 1991		
	Allocation of funds	Prior year funds applied	Cash advances/ reimbursements	Total obligations	Allocation of funds	Cash advances/ reimbursements	Total obligations
PROJECTS							
Ak-Chin Farms, Phase Two, Arizona.....	$0	$1	$0	$1	$0	$0	$0
Gila River Farms-Supplemental, Arizona	0	66	0	66	0	0	$0
Middle Creek Dam Rehab., Montana......	818	0	0	818	2,944	0	2,944
Hidalgo County ID NO. 1-Supl., Texas..	3,690	2,010	0	5,700	2,002	0	2,002
Elsinore Valley MWD, California.......	10,669	519	0	11,188	0	0	0
San Berndn CO. Day Creek, California..	9,031	0	0	9,031	0	0	0
United Water CD NO 1, California......	6,160	3	0	6,163	0	0	0
Stagecoach Project, Colorado..........	2,403	9	0	2,412	0	0	0
Subtotal Projects.....................	$32,771	$2,608	$0	$35,379	$4,946	$0	$4,946
LOAN ADMINISTRATION	873	215	0	1,088	762	0	762
TOTAL - LOAN PROGRAM..................	$33,644	$2,823	$0	$36,467	$5,708	$0	$5,708

LOAN PROGRAM

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1990 AND FISCAL YEAR 1991

	PROGRAM ITEM	NOTE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30 1989	FY 1990 PROGRAM	FY 1991 PROGRAM	BALANCE TO COMPLETE
1	PROJECTS INCLUDED BEFORE 1991						
2	AK-CHIN FARMS - PHASE TWO		18,442,400	18,441,836	564		
3	ELSINORE VALLEY MWD		25,975,000	10,634,074	11,188,426		4,152,500
4	GILA RIVER FARMS-SUPL		6,554,000	6,487,821	66,179		
5	HIDALGO CO ID NO. 1-SUPL		12,972,000		5,699,745	2,002,000	5,270,255
6	LOAN PROGRAM ADMINISTRATION		15,751,506	10,971,884	1,088,359	762,000	2,929,263
7	MIDDLE CREEK DAM REHAB		3,774,000		818,000	2,944,000	12,000
8	SAN BERNDN CO - DAY CREEK		13,412,000	9,473,810	9,031,000		5,092,810-
9	STAGECOACH PROJECT		7,016,597	6,300,359	2,411,940		1,695,702-
10	UNITED WCD NO. 1		18,155,426	11,040,413	6,163,013		952,000
11	O -- COST/CONTRACT ESCALATION		1,248,000	500,000			748,000
12	SUBTOTAL		123,300,929	73,850,197	36,467,226	5,708,000	7,275,506
13	TOTAL OBLIGATIONS		123,300,929	73,850,197	36,467,226	5,708,000	7,275,506
14	METHOD OF FINANCING						
15	APPLICATION OF PRIOR YEAR FUNDS				2,823,226		24,445
16	APPROPRIATION AVAILABLE & REQD				33,644,000	5,708,000	7,251,061

ITEMIZATION OF ESTIMATES
(In Thousands of Dollars)

Department of the Interior — Bureau of Reclamation
Appropriation Title: Loan Program

	Estimated 1990	Estimated 1991	Increase or Decrease
Program and Financing:			
Total direct program	36,467	5,708	(30,759)
Application of Prior Year Funds	(2,823)	0	2,823
Appropriation	33,644	5,708	(27,936)
Object Classification			
11.0 Personnel Compensation	493	468	(25)
12.1 Personnel Benefits	65	65	0
21.0 Travel and Transportation	66	38	(28)
22.0 Transportation of Things	1	0	(1)
23.1 Rental Payments to GSA	10	9	(1)
23.3 Communication, Utilities, Miscellaneous	9	6	(3)
24.0 Printing	2	2	0
25.0 Other Services	4,336	166	(4,170)
26.0 Supplies and Materials	7	6	(1)
31.0 Equipment	3	2	(1)
33.0 Investments and Loans	31,475	4,946	(26,529)
99.0 Total Obligations	36,467	5,708	(30,759)

EMERGENCY FUND

General Statement

Summarized Financial Data:

Fiscal Year 1990:		
Appropriation (Reflects Public Law 99-177 reduction of - $14,000)	$ 986,000	
Application of Prior Year Funds	$1,114,098	
Total Obligations, Fiscal Year 1990		$2,100,098
Fiscal Year 1991:		
Estimate of Appropriation	$1,000,000	
Total Obligations, Fiscal Year 1991		$1,000,000

Status of Fiscal Year 1989 Emergency Funds: The fiscal year 1988 unobligated balance of $819,328 was available for work in fiscal year 1989. Of the $819,328 available, funds were allotted to the Yakima Project, Washington, for scaling and removing loose rock and repairing the damaged concrete above the Tieton spillway where a slide occurred above the spillway ($21,757); to Boca Dam, California, for replacement of needle valves ($367,195); to the Central Valley Project, Operation and Maintenance, California, to repair the cracked rotor on Folsom Powerplant, Unit No. 3, and for containment and removal of an oil spill in the Delta-Mendota Canal ($37,492); and to the Colorado Big Thompson Project for emergency work associated with repairs on the Carter Lake Pressure Tunnel ($45,029). An unobligated carryover balance of $347,855 remained in the Emergency Fund for emergency work in fiscal year 1989.

The appropriation for fiscal year 1989 was $1 million. Funds were allotted to the Colorado Big Thompson Project for continued work associated with repairs on the Carter Lake Pressure Tunnel ($350,000), and to the Haight's Creek Irrigation Company, Small Reclamation Project Act Project, Loan Program, to remedy an unusual situation wherein pipeline failures caused numerous interruptions in water deliveries ($72,500).

Status of Fiscal Year 1990 Emergency Funds: An unobligated balance of $1,114,098 from fiscal year 1989 is available for work in fiscal year 1990. Of this amount, funds have been allotted to Boca Dam, California, for replacement of needle valves ($10,179); to the Central Valley Project, Operation and Maintenance, California, for containment and removal of an oil spill in the Delta-Mendota Canal ($1,229); to the Haight's Creek Irrigation Company, Small Reclamation Project Act Project, Loan Program, to remedy an unusual situation wherein pipeline failures caused numerous interruptions in water deliveries ($72,500); and to the Colorado Big Thompson Project for emergency work associated with repairs on the Carter Lake Pressure Tunnel ($84,494). An unobligated carryover balance not allotted for emergency use of $945,696 remains in the Emergency Fund for emergency work in fiscal year 1990.

The appropriation for fiscal year 1990 is $986,000. Thus far, funds have been allotted to Central Valley Project, Dos Amigos Pumping Plant, Unit 2, where severe vibrations have made the plant inoperable. Recent inspections revealed significant movement of the unit rotor hub with respect to the shaft, also the rim lost the design prestress which jeopardizes the structural integrity of the rim and spider assembly ($270,000).

Fiscal Year 1991 Program: An appropriation of $1 million will provide a source of funds to meet emergencies as authorized by Public Law 80-790 (June 26, 1948) and Public Law 97-275 (October 1, 1982). This would ensure continuous operation of all projects and project facilities governed by the Federal Reclamation Law in the event of drought, canal bank or electrical facility failures, municipal and industrial water delivery system failures, or other unusual or emergency conditions.

ITEMIZATION OF ESTIMATES
(In Thousands of Dollars)

Department of the Interior — Bureau of Reclamation
Appropriation Title: Emergency Funds

	Estimated 1990	Estimated 1991	Increase or Decrease
Program and Financing:			
Total obligations	2,100	1,000	(1,100)
Application of Prior Year Funds	(1,114)	0	1,114
Appropriation	986	1,000	14
Object Classification			
92.0 Undistributed funds for emergencies	2,100	1,000	(1,100)
99.0 Total Obligations	2,100	1,000	(1,100)

GENERAL ADMINISTRATIVE EXPENSES

GENERAL STATEMENT

Summarized Financial Data:

Fiscal Year 1990:		
Appropriation (Reflects PL 99-177 reduction of -$672,000).	$47,311,000	
Application of Prior Year Funds	2,361,000	
Total Obligations		$49,672,000
Fiscal Year 1991		
Estimate of Appropriation	51,431,000	
Total Obligations		$51,431,000

Fiscal Year 1991 Program:

A. Definition and Function

The GAE Appropriation finances the centralized management functions of the Bureau of Reclamation. These functions include program administration, personnel management, administration of foreign activities programs, budgetary policy formulation, and in general, identifying more cost efficient modes of administrative operation. Productivity and management improvement plans, internal controls, and ongoing investigations and reviews of various cost elements also fall under this program.

B. New Directions Under GAE

The President has made one of his chief objectives "to improve the use and management of the Nation's water resources." A portion of the GAE appropriation goes toward coordinating the implementation of the Bureau of Reclamation's "new direction" activities. The GAE funds will also be used to assist in the Administration's overall goal of reforming and improving governmental services and facilities.

In symphony with this, GAE includes a $1 million increase for activities that support the Secretary's Stewardship plan for taking part in the war on drugs, expanding educational opportunities, enhancing Take Pride in America outreach programs, promoting equity in recruitment for women and minorities, and encouraging volunteerism.

C. Acquisitions

In general, major acquisitions in this appropriation refers to purchases costing in excess of $50,000. Major acquisitions include hardware, long-term service contracts, GAE's portion of bureau-wide purchases and similar items. Another significant activity funded under GAE is the Project Plan for Manuals and Standards, which involves the updating of technical manuals and the documentation of internal standards and will require $200,000. Another Acquisition cost will be the modification of building 56 in Denver to correct existing safety and health deficiencies ($300,000). In the Washington office, the computer equipment, is out-of-date and incompatible with other systems. The 1991 GAE budget includes $100,000 to replace this equipment.

D. Organizational Responsibilities

After the Bureau of Reclamation's reorganization in FY 1988, the following major offices and subdivisions were established:

(i) Commissioner's Office

This main office was established in Washington to provide policy direction on all water, land, power, and related programs under the jurisdiction of the Bureau. The Assistant Commissioner - Administration and Liaison(ACAL) is responsible for supervising and coordinating all of Reclamation's administrative duties, including budget and foreign activities which are performed in Washington. In addition, the ACAL acts as a liaison with the Department of the Interior, the Office of Management and Budget, the Congress, and other Federal agencies and constituent groups.

(ii) Deputy Commissioner's Office

The Deputy Commissioner's Office in Denver is responsible for the daily operations of Reclamation. Included in these duties are the coordination of programmatic activities of the Assistant Commissioners and the Regional Directors. Also located in Denver is the Assistant Commissioner - Engineering and Research(ACER). The ACER is responsible for directing all the design, construction, and research programs of Reclamation. The Assistant Commissioner - Resource Management(ACRM), also in Denver, is responsible for directing Reclamation's water and power resource management, conservation, and planning activities. Each Regional Director is responsible for directing all program activities and managing the administrative functions applicable to their individual region.

(iii) Deputy Assistant Commissioner - Administration

The Deputy Assistant Commissioner - Administration(DACA) is responsible for information resources, youth programs, personnel management, safety, finance and acquisition activities, property management, and total administrative support for the Denver Office. The Administrative Service Center(ASC) provides consolidated administrative services to Interior and other Federal agencies. Both of these Denver Offices report to ACAL in Washington.

E. General

The major portion of the expense required to maintain the Denver Office is incurred in rendering direct technical assistance and services to regional and field offices, projects, and activities. These services are financed by funds from programs, projects or activities. The major portion of the funds available will come from the Construction Program, General Investigations, and Operation and Maintenance accounts. The work is planning, design, laboratory services, and related activities which the Denver Office performs in a centralized organizational structure in direct support of Reclamation projects and programs. All non-project specific activities are accounted for in the Working Capital Fund with appropriate sharing from each of our appropriation accounts.

FUNCTIONS FINANCED FROM GAE

Administration of Department-wide Initiatives - This program develops specific policy directives for implementing key aspects of the Secretary's Stewardship plan. Through the combined efforts of all Reclamation offices, real gains can be made in eliminating drug use, increasing recruitment of women and minorities, expanding educational opportunities, encouraging grassroots interest in and enjoyment of our natural resources and promoting volunteerism. Through GAE activities, a concerted effort will be made to increase participation in Stewardship programs at all levels throughout the Bureau.

Program Administration - Involves developing and promulgating the policies controlling all Reclamation activities within prescribed policies, regulations, and procedures. This includes:
(1) direction of the work program of Reclamation, (2) determination and establishment of policies, standards, and requirements for performance of Reclamation's program, (3) review and control of Reclamation's operations, (4) development of supervision methods and work objectives, and
(5) coordination of Reclamation's overall administrative, planning, construction, operations, and other activities to ensure adherence at all levels to Reclamation's approved policies, standards, and guidelines.

Budget Formulation and Application - Develops procedures for the preparation of estimates and justifications for Reclamation funding and personnel. As part of a broad program of analysis of priorities and goals, policies and procedures are formulated that will outline the immediate financing requirements as well as those for long range forecasts. The program calls for the setting of policies and the overseeing of the implementation of the entire budgeting system.

Personnel Management - Is responsible for establishing policies and programs to ensure management, executive, and staff capability to meet present and future needs. Specific functional areas include training and employee development, position classification, pay, labor and employee relations (including wage administration and collective bargaining on hourly paid employees), staffing and recruitment, and ADP issues related to personnel management. Program and policy development, implementation, and oversight are the main activities performed in this area.

Administrative Policy - This promulgates policy guidance and direction for correspondence, procurement, and property management practices within Reclamation.

Freedom of Information - Involves development and preparation of policy and procedural instructions to facilitate Bureauwide implementations and compliance with Freedom of Information and Privacy acts. Interprets, analyzes, and promulgates departmental, Office of Personnel Management, and Office of Management and Budget regulations and directives pertaining to the acts for Bureau use. Revises and prepares reports as required by the acts and departmental regulation, and documents information through the use of forms, directives, and reports.

Equal Employment Opportunities and Management - Establishes policy, standards and procedures for ensuring Reclamation implementation and compliance with equal opportunity and related civil rights laws, regulations and directives governing employment, handicap accessibility and federally assisted programs administered by Reclamation. Develops and implements Reclamation-wide activities related to affirmative employment, special emphasis, precomplaint counseling, discrimination complaint processing, and other equal opportunity/civil rights functions.

Civil Defense Administration Participation - Sets Bureau policy within requirements of law and Department policy. Checks implementation of civil defense preparedness and protection of property and personnel from enemy attack, sabotage, civil disturbance, or malicious damage.

Interagency Activities - Provides of liaison with pertinent Federal, State, university, and research foundation staffs. Reviews and comments on reports of other agencies on proposed developments by those agencies in the water resource field, such as watershed work plans of the Department of Agriculture and planning reports of the Corps of engineers.

Official Representation and Liaison Function - Provides for support for the Commissioner to host dignitaries at official functions, and for official representation of the Bureau at national and international exhibitions directly bearing on the Reclamation program.

Information Reports - Sets policy and implements a review program covering the dissemination of information on developments in irrigation, equipment, methods, etc. Analyzes and initiates studies of special engineering and policy problems as required upon inquiry from members of the Congress, public and private agencies, organizations, and individuals.

Safety of Dams Policy and Administration - Formulates general policy guidelines for the evaluation and oversight of Reclamation's safety of dams program and sets priorities for developing fiscal programs related to structural modification of dams and early warning systems for safety purposes.

Attendance at Meetings of Technical Societies and Professional Groups - Sets policy and advises and assists in implementation with respect to Bureau participation in professional activities including participation in interagency or international seminars and meetings. Maintains liaison with engineering societies, consultants, and engineering firms.

Environmental Policy, Review, and Management - Develops policy and processes for assuring that new construction and modifications to existing facilities conform to environmental standards and for reviewing and evaluating the Bureau's implementation of plans for improving environmental compatibility of existing structures, facilities, land, and waterways under its jurisdiction. Provides review of environmental impact statements prepared by Reclamation and other agencies.

Recreation and Fish and Wildlife Administration - Provides direction and policy for preparation, negotiation, execution, and supervision of land and reservoir management agreements on recreation and fish and wildlife aspects of the Reclamation program.

Environmental Education - Develops programs to help the public understand Reclamation's environmental responsibilities in effective multiple-use management of water resources, to assist in better decision-making on the part of the public in the management and development of water, power, and land resources, and to aid the public in recognizing the need to manage and conserve these renewable resources.

Safety and Health - The safety and health program responsibility includes setting policy and standards, and reviewing performance in the areas of (1) protection of the occupational safety and health of employees engaged in construction, operation and maintenance, hazardous waste and associated activities; (2) evaluation and review of Reclamation safety and health activities for compliance in coordination with all applicable Department of Labor and other regulations; (3) coordination with the Occupational Safety and Health Administration on safety regulations, and (4) advising and assisting officials at all organizational levels to maintain a vigorous and effective safety and health program. The program provides substantial savings in costs from medical treatment of injuries, compensation for work time, and motor vehicle and government property damage, and contractor and public liability costs.

Development of Technical Publications - Involves the updating of existing, and preparation of new Reclamation manuals, design standards, and other publications used in the planning, design, construction, and operation of water resources projects. Provides documentation of internal standards in support of design and construction, to train our developing engineering staff, and to provide guidance to A-E Contractor's in Reclamation's projects. Documents Reclamation's developments and expertise to share with the engineering profession.

Compact Commissions - Meetings and Studies - Involves attendance at compact commission meetings to provide specialized knowledge and to carry out studies that may be required by the commission.

Interagency Initiatives - Provides for support and participation in interagency efforts which cover Bureau activities or where the Bureau's engineering, operational, or administrative leadership can be utilized outside of Reclamation programs.

Administration of Foreign Activities Work - Develops policies, and procedures for participation by the Bureau in international activities. Develop new initiatives, reviews and evaluates ongoing or completed programs to assure international technology transfer, and maximizes participation of private sector interests. Provide administrative support to Bureau personnel traveling on mission-related Foreign travel. Provide liaison with pertinent Departmental and other Federal agency staff and others on Bureau's foreign activities program. The international technical assistance and training programs are conducted on a reimbursable basis.

Preparation of Bulletins, Operations Instructions, and Cost Information Reports - Preparation and dissemination of publications covering operation and maintenance procedures for municipal and industrial water, power, and irrigation facilities. Prepares instruction material for operation and maintenance training sessions and cost information reports for general use in the field of operation and maintenance of the Bureau's power and irrigation facilities.

Management Review of Water User Operated Projects - Includes the development of irrigation policies, objectives, and standards for the review and inspection of operation and maintenance of Reclamation facilities transferred to water users.

Power Repayment Study Reviews - Reviews for conformance to policy and sound economic analysis studies which determine the amount of revenues needed to operate power facilities and to recover investment expenditures on power projects.

Water Project Repayment Contract Policy Reviews - Provides for in-depth contract policy and management review to assure compliance with sound business practices and applicable laws and regulations.

Gaging Station and Meteorological Programs Coordination - Develops river regulation policies, standards and procedures for river regulation operations, including sedimentation, erosion, and other control problems when not related to a specific job.

Data Collection and Publications - Provides for summarizing and analyzing materials for use in publications. Includes the review and analysis prior to publication of materials such as annual reports, the roster of irrigation districts, crop reports and related data, accomplishment reports, tax analysis, and special reports.

Land Administration - Provides for general policy direction for administration of lands under the jurisdiction of Reclamation. Responsibility for administration of anti-speculative and acreage limitation provisions of law has been transferred to the Reclamation Reform Program, financed by the Operation and Maintenance appropriation.

Legal Matters and General Meetings Requiring Bureau Participation - Involves the attendance of appropriate Bureau personnel in meeting to participate in witness selection or defining the Bureau position on controversial issues. Collaborates with the Solicitor's office and other appropriate offices within the Department in preparing and/or reviewing legislation affecting water resource development.

ITEMIZATION OF ESTIMATES
(In Thousands of Dollars)

Department of the Interior — Bureau of Reclamation
Appropriation Title: General Administrative Expenses

	Estimated 1990	Estimated 1991	Increase or Decrease
Program and Financing:			
Total direct program	49,672	51,431	1,759
Prior Year Funds	(2,361)	0	2,361
Appropriation	47,311	51,431	4,120
Object Classification			
11.0 Personnel Compensation	26,905	27,737	832
12.1 Personnel Benefits	3,684	4,007	323
13.0 Benefits for Former Personnel	36	46	10
21.0 Travel and Transportation	2,493	2,586	93
22.0 Transportation of Things	151	155	4
23.1 Rental Payments to GSA	544	672	128
23.2 Rental Payments to Others	873	930	57
23.3 Communication, Utilities, Miscellaneous	310	313	3
24.0 Printing	1,089	405	(684)
25.0 Other Services	11,446	13,456	2,010
26.0 Supplies and Materials	384	471	87
31.0 Equipment	1,755	651	(1,104)
32.0 Lands and Structures	2	2	0
99.0 Total Obligations	49,672	51,431	1,759

WORKING CAPITAL FUND

General Statement

Summarized Financial Data:

Fiscal Year 1990:

Appropriation (Reflects PL 99-177 reduction of $119,000)	$ 8,381,000
Application of Prior Year Funds	18,604,520
Offsetting Collections from Federal Funds	107,376,000
Unobligated Balance, End of Year	-22,880,000
Total Direct Obligations	$111,481,520

Fiscal Year 1991:

Estimate of Appropriation	$ 4,831,000
Offsetting Collections from Federal Funds	107,242,000
Unobligated Balance, End of Year	-17,500,000
Application of Prior Year Funds	22,880,000
Total Direct Obligations	$117,453,000

Fiscal Year 1991 Program:

The purpose of the Working Capital Fund (WCF) is to improve the method of financing the centralized functions performed on behalf of all activities in the regional offices and the Denver office. Specifically, use of the WCF (1) simplifies funding and accounting procedures for centralized functions, (2) provides a means for equipment or facility user charges which considers replacement costs, (3) eliminates distorted project costs when equipment is not used entirely for a single project throughout its normal life, and (4) promotes efficient scheduling of equipment used by all regions.

The WCF is generally intended to operate within its own resources, rather than from annual appropriations. The fund will accumulate funds from charges for depreciation, to be used for replacement of assets. In some years, appropriations may be requested to augment the depreciation reserve to finance replacement of assets transferred to the WCF at or near the end of their useful life as no reserves were accumulated for equipment replacement prior to enactment of WCF authorizing legislation. However, it will not require an increase to the overall Reclamation budget since the requests would historically have come under other accounts. The fund will enable Reclamation to recover the cost of centralized equipment and facility improvements over their useful lives.

Funds totalling $4,831,000 in 1991 will be used for several projects: computer capacity for the Business Systems Acquisition Project, $1,900,000; replacement of computer equipment and specialized equipment for geotechnical, water automation, chemical engineering, and for remote sensing equipment, $2,278,000; for constructing a soils testing facility to replace more expensive rented space, $300,000; and for trucks for regional and projects offices, $353,000.

ITEMIZATION OF ESTIMATES
(In Thousands of Dollars)

Department of the Interior — Bureau of Reclamation

Appropriation Title: Working Capital Fund

	Estimated 1990	Estimated 1991	Increase or Decrease
Program and Financing:			
Total obligations	111,481	117,453	5,972
Offsetting collections	(107,376)	(107,242)	134
Unobligated balance available, start of year	(18,605)	(22,880)	(4,275)
Unobligated balance available, end of year	22,880	17,500	(5,380)
Appropriation	8,381	4,831	(3,549)
Object Classification			
11.0 Personnel Compensation	24,319	25,189	870
12.1 Personnel Benefits	4,749	5,185	436
13.0 Benefits for Former Personnel	3	1	(2)
21.0 Travel and Transportation	1,310	1,402	92
22.0 Transportation of Things	1,221	1,501	280
23.1 Rental Payments to GSA	7,202	6,965	(237)
23.2 Rental Payments to Others	65	63	(2)
23.3 Communication, Utilities, Miscellaneous	4,324	4,896	572
24.0 Printing	657	653	(4)
25.0 Other Services	42,745	56,161	13,416
26.0 Supplies and Materials	3,520	4,310	790
31.0 Equipment	21,359	11,119	(10,240)
32.0 Lands and Structures	7	7	0
99.0 Total Obligations	111,481	117,453	5,971

PERMANENT APPROPRIATIONS

General Statement
Miscellaneous Permanent Appropriation

Summarized Financial Data:

Fiscal year 1990:

Appropriation	$282,000
Application of Prior Year Funds	65,000
Total Obligations	347,000

Fiscal year 1991:

Estimate of Appropriation	$280,000
Application of Prior Year Funds	4,000
Total Obligations	284,000

Operation, Maintenance, and Replacement of Project Works, North Platte Project (Gering and Fort Laramie, Goshen and Pathfinder irrigation districts), $7,000 -This fund is derived from operation of project powerplants, leasing of project grazing and farm lands, sale or use of townsites, and sale or rental of surplus water (66 Stat. 755, Sec. 4).

Payment to Farmers Irrigation District (North Platte Project, Nebraska-Wyoming), $8,000 - Payments are made to Farmers Irrigation District on behalf of Northport Irrigation district for water carriage (62 Stat. 273, as amended).

Payments to Local Units, Klamath Reclamation Area, $254,000 - Certain revenues collected for the leasing of Klamath Project reserved Federal lands within the boundaries of certain national wildlife refugees shall be used (a) to credit or pay the Tule Lake Irrigation District amounts already committed (70 Stat. 799) and (b) to make annual payments to the counties in which such refugees are located (78 Stat. 850).

Operation and Maintenance of Quarters, Fort Simcoe Job Corps Center, $15,000 -Receipts from the rental of quarters are used for the operation and maintenance of quarters (P.L. 98-473).

ITEMIZATION OF ESTIMATES
(In Thousands of Dollars)

Department of the Interior — Bureau of Reclamation

Appropriation Title: Miscellaneous Permanent Appropriations

	Estimated 1990	Estimated 1991	Increase or Decrease
Program and Financing:			
Total obligations	347	284	(63)
Unobligated balance available, start of year	(69)	(4)	65
Unobligated balance available, end of year	4	0	(4)
Appropriation	282	280	(2)
Object Classification			
25.0 Other Services	89	22	(67)
41.0 Grants, Subsidies, and Contributions	258	262	4
99.0 Total Obligations	347	284	(63)

PERMANENT APPROPRIATIONS

Colorado River Dam Fund
Boulder Canyon Project

Summarized Financial Data:

Fiscal year 1990:

Appropriation, permanent indefinite	$63,608,000
Appropriation, current	- 3,564,000
Budget authority, Colorado River Dam Fund	60,044,000
Application of Prior Year Funds	658,000
Total Estimated Obligations	$60,702,000

Fiscal year 1991:

Estimate of Appropriation, permanent indefinite	34,165,000
Estimate of Appropriation, current	- 4,702,000
Budget authority, Colorado River Dam Fund	29,463,000
Application of Prior Year Funds	21,173,000
Total Estimated Obligations	50,636,000

Colorado River Dam Fund, Boulder Canyon Project:
Payment of interest on advances from the Treasury, $2,716,000 - Interest is paid to the Treasury on funds advanced for construction of the Hoover Dam and appurtenant project works (42 U.S.C. 618a (b)).

Payment to States of Arizona and Nevada, $600,000 - Annual payments of $300,000 each are made to Arizona and Nevada from operations of the Boulder Canyon Project, as provided by law (43 U.S.C. 618a (c)).

Operation and Maintenance, $30,046,000 - Beginning in 1987, Reclamation assumed responsibility for the operation and maintenance of the powerplant. Other work involves the tearing down and repairing generating units, installing normal replacement equipment such as pumps, motors and electrical items, visitor services activities, and providing security for the dam and associated facilities.

Uprating and Betterment, $17,274,000 - Through the end of fiscal year 1990, the total estimated nameplate capacity will be 1908.8 megawatts. Eventually, the total nameplate capacity of the powerplant will be increased to 2039.0 megawatts.

Transfer to Western Area Power, $4,702,000 - A transfer is made to WAPA for power marketing costs and purchase power.

ITEMIZATION OF ESTIMATES
(In Thousands of Dollars)

Department of the Interior — Bureau of Reclamation

Appropriation Title: Colorado River Dam Fund
Boulder Canyon Program

	Estimated 1990	Estimated 1991	Increase or Decrease
Program and Financing:			
Total direct program	60,702	50,636	(10,066)
Unobligated balance available, start of year	(22,122)	(21,464)	658
Unobligated balance available, end of year	21,464	291	(21,173)
Budget Authority (Colorado River Dam Fund)	60,044	29,463	(30,581)
Appropriation:			
Permanent	63,608	34,165	(29,443)
Transfer to Current	(3,564)	(4,702)	(1,138)
	60,044	29,463	(30,581)

Object Classification		Estimated 1990	Estimated 1991	Increase or Decrease
11.0	Personnel Compensation	11,612	10,511	(1,101)
12.1	Personnel Benefits	1,966	1,877	(89)
13.0	Benefits for Former Personnel	2	1	(1)
21.0	Travel and Transportation	148	140	(8)
22.0	Transportation of Things	186	180	(6)
23.1	Rental Payments to GSA	57	54	(3)
23.3	Communication, Utilities, Miscellaneous	209	201	(8)
24.0	Printing	92	101	9
25.0	Other Services	12,359	4,063	(8,296)
26.0	Supplies and Materials	4,365	4,200	(165)
31.0	Equipment	2,387	2,271	(116)
32.0	Lands and Structures	26,372	26,124	(248)
41.0	Grants, Subsidies, and contributions	947	913	(34)
99.0	Total Obligations	60,702	50,636	(10,066)

DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

EXPLANATION OF CHANGES IN APPROPRIATION LANGUAGE - Fiscal Year 1991

CONSTRUCTION

Deletion of the proviso "That of the amount herein appropriated, such amounts as may be necessary shall be available to enable the Secretary of the Interior to continue work on rehabilitating the Velarde Community Ditch Project, New Mexico, in accordance with the Federal Reclamation Laws (Act of June 17, 1902, 32 Stat. 388, and Acts amendatory thereof or supplementary thereto) for the purposes of diverting and conveying water to irrigated project lands. The cost of the rehabilitation will be nonreimbursable and constructed features will be turned over to the appropriate entity for operation and maintenance."

There is no money programmed for this work in fiscal year 1991.

Deletion of the proviso "That the funds contained in this Act for the Garrison Diversion Unit, North Dakota, shall be expended only in accordance with the provisions of the Garrison Diversion Unit Reformulation Act of 1986 (Public Law 99-294);"

Available FY 1990 funds will be utilized in FY 1991 to provide for activities involved with the orderly termination of work on this project and for site security and public safety at project facilities. There are no new funds requested for Garrison in FY 1991.

Addition of the proviso "That all costs of the safety of dams modification work at Coolidge Dam, San Carlos Irrigation Project, Arizona, performed under the authority of the Reclamation Safety of Dams Act of 1978 (43 U.S.C. 506), as amended, are in addition to the amount authorized in section 5 of said act."

This proviso is needed to exclude the costs of safety of dams work at Coolidge Dam from the appropriation ceiling of the Reclamation Safety of Dams Act of 1978, as amended by the Safety of Dams Act of 1984. Coolidge dam was included in the scope of the 1984 act but the ceiling of $650,000,000 did not include funding for Coolidge.

Addition of the proviso ":Provided further, That of the amount herein appropriated, such amounts as may be necessary shall be available pursuant to the Snyder Act (25 U.S.C. 13) to the Bureau of Reclamation to perform studies and construction activities related to safety of dams modification work on dams under the jurisdiction of the Bureau of Indian Affairs."

This language is needed to authorize the Bureau of Reclamation to assume responsibility for Safety of Dams work for the Bureau of Indian Affairs.

Deletion of the proviso "That $17,000,000 of the funds herein appropriated shall be available for use for construction on the Davis Creek Dam, North Loup Division, Nebraska, and related facilities in addition to the amount requested by the Secretary of the Interior for continuing work on the North Loup Division, which funds shall remain available until expended:"

This proviso was only applicable to 1990.

Deletion of the proviso "That in accordance with Public Law 100-563, there is authorized to be appropriated under section 8, of the Act of April 11, 1956 (70 Stat. 110; 43 U.S.C. 620g), $15,000,000 as compensation to the Strawberry Water Users Association which shall be available only for such compensation and must be used for Strawberry Valley Reclamation Project purposes. Of the amounts appropriated hereafter (including funds previously appropriated for fiscal year 1989) under section 8 of such Act, the first $15,000,000 shall be paid to the Association. Upon receipt of such compensation, the Association shall relinquish all of its contractual surface rights and interests, including sand and gravel, in the 56,775 acres of Project lands."

This proviso was only applicable to 1990.

Deletion of the paragraph "Nothing in this Act shall delay the transfer of Strawberry Valley Project lands under the terms and conditions of section 4 of Public Law 100-563."

This was only applicable to 1990.

Deletion of the paragraph "During the fiscal year 1990, the Bureau is authorized to utilize funds surplus to construction needs under section 5 of the Act of April 11, 1956 (70 Stat. 107; 43 U.S.C. 620d), if available, (Bonneville Unit only) to accomplish the purposes and objectives of sections 3 and 4 of Public Law 100-563."

This was only applicable to 1990.

DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

EXPLANATION OF CHANGES IN APPROPRIATION LANGUAGE - Fiscal Year 1991

GENERAL INVESTIGATIONS

Deleted the proviso "That all costs of an advance planning study of a proposed project shall be considered to be construction costs and to be reimbursable in accordance with the allocation of construction costs if the project is authorized for construction:"

There are no advance planning studies being funded in fiscal year 1991.

DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

EXPLANATION OF CHANGES IN APPROPRIATION LANGUAGE - Fiscal Year 1991

OPERATION AND MAINTENANCE

Changed the word "objects" in third proviso to "purpose", so that the proviso now reads "That funds advanced by water users for operation and maintenance of reclamation projects or parts thereof shall be deposited to the credit of this appropriation and may be expended for the same purpose and in the same manner as sums appropriated herein may be expended...."

This change is made for clarification.

Deleted the proviso "That none of the funds appropriated in this act shall be used to execute new long-term contracts for water supply from the Central Valley project, California, prior to October 1, 1990."

This proviso was only applicable to 1990.

DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

EXPLANATION OF CHANGES IN APPROPRIATION LANGUAGE - Fiscal Year 1991

SPECIAL FUNDS

Revised the "December 27" date to "December 22" and changed the statutory reference from (16 U.S.C. 4601-6a, as amended) to (16 U.S.C. 460L-6a, as amended).

These changes are made to reflect actual date and citation of act. The citation after 460 should be a small alpha "L" instead of numeric "one" (1).

DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

EXPLANATION OF CHANGES IN APPROPRIATION LANGUAGE - Fiscal Year 1991

Working Capital Fund

Addition of the words "and facilities" after the words "and other capital equipment".

This is needed as some of the requested funds are for the construction of a soil testing laboratory building in the Pacific Northwest Region.

DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

EXPLANATION OF CHANGES IN APPROPRIATION LANGUAGE - Fiscal Year 1991

ADMINISTRATIVE PROVISIONS

Changed the number of passenger motor vehicles to be purchased from 28 to 17.

The 17 units requested for replacement qualify under the criteria of FPMR 101.38.9 (6 years or 60,000 miles for sedans and station wagons). This includes one vehicle for law enforcement use. In fiscal year 1991, 24 additional trucks are being purchased.

	Automobiles	Station Wagons	Buses	Trucks	All Types Total Passenger-Carrying and Trucks
Fiscal Year	Number	Number	Number	Number	
1986	80	16	--	1,918	2,014
1987	69	14	--	1,691	1,774
1988	64	16	--	1,683	1,763
1989 (actual)	64	17	--	1,713	1,794
1990 (est.)	64	17	--	1,713	1,794
1991 (est.)	64	17	--	1,737	1,818

Deletion of "acquisition of one aircraft by transfer of title without the use of appropriated funds;"

This proviso was only applicable to 1990.

Change "applied engineering" in first proviso in first paragraph to "science and technology."

The name for applied engineering has been changed to "science and technology" to better reflect the work Reclamation is doing in this program.

Deletion of "section 3679 of the Revised Statutes, as amended."

The citation of the United States Code is sufficient in itself.

Deletion of the paragraph "The Bureau of Reclamation may hereafter accept the services of volunteers and, from any funds available to it, provide for their incidental expenses to carry out any activity of the Bureau of Reclamation except policymaking or law or regulatory enforcement. Such volunteers shall not be deemed employees of the United States Government, expect for the purposes of chapter 81 of title 5 of the United States Code relating to compensation for work injuries, and shall not be deemed employees of the Bureau of Reclamation except for the purposes of tort claims to the same extent as a regular employee of the Bureau of Reclamation would be under identical circumstances."

This paragraph on volunteerism was in the 1990 appropriation act. The use of the word "hereafter" makes this permanent legislation.

ADVISORY AND ASSISTANCE SERVICES
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

(In Thousands of Dollars)

Account Title and Symbol		1989	1990	1991
General Investigations 14-5060-0-2-301				
I. Contractual Services				
Engineering & Technical Services	B.A.	0	100	50
	Oblig.	0	100	50
	Outlays	0	64	68
II. Personnel Appointments	B.A.	0	37	45
	Oblig.	0	37	45
	Outlays	0	24	45
TOTAL	B.A.	0	137	95
	Oblig.	0	137	95
	Outlays	0	88	113

Prepared: Jan. 12, 1990
Darrell Mach
343-4690

(In thousands of dollars)

Appropriation	FY 1989	FY 1990	FY 1991
General Investigations	14,250	11,369	11,456

In FY 1989, there were 15 new starts and 29 ongoing investigations, of which 15 completed during the year. In FY 1990, there are 6 new starts and 26 ongoing investigations of which 7 will complete during the year. The FY 1991 program includes 9 new starts and 25 ongoing investigations of which 3 will complete during the year.

Contracts will be used for engineering and consulting services. Major programs requiring these services are toxic evaluation and application, hazardous waste assistance and training, public involvement and decision analysis.

These programs require state-of-the-art technology and experts in these fields who provide occasional or one-time advice and assistance. Since full-time availability is not necessary, access to this expertise through contracts with experts and consultants allows Reclamation to take advantage of a source that would be difficult to recruit and retain for the short duration where services are needed.

Quarterly reports are requested from supervisors to verify number of days consultants and experts worked during the quarter and duties they performed during this period to assure they meet the intent of the Expert and Consultant appointment requirements. Also, internal controls are currently being implemented in accordance with the Federal Acquisition Regulation 37.207 and Reclamation Acquisition Directive 37.205.

ADVISORY AND ASSISTANCE SERVICES
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

(In Thousands of Dollars)

Account Title and Symbol		1989	1990	1991
Construction Program 14-0684-0-1-301				
I. Contractual Services				
Engineering & Technical Services	B.A.	0	300	250
	Oblig.	0	300	250
	Outlays	0	252	258
II. Personnel Appointments	B.A.	23	38	45
	Oblig.	23	38	45
	Outlays	19	36	44
TOTAL	B.A.	23	338	295
	Oblig.	23	338	295
	Outlays	19	288	302

Prepared: Jan. 12, 1990
Darrell Mach
343-4690

Appropriation	(In thousands of dollars) FY 1989	FY 1990	FY 1991
Construction Program	712,305	652,850	609,430

The decrease in funding from FY 1989 to FY 1991 results from a decrease in scheduled construction work but is consistent with Reclamation's new direction and continues the policy to complete ongoing projects in a timely manner.

The Construction Program areas that require advisory and assistance services are the Safety of Dams Program, Total Quality Management Training, Groundwater Recharge Demonstration Program, Wetlands Program, Water Quality, and various projects with a need for special analyses.

It is Reclamation's policy to obtain a technical review for major dam structures from outside consultants. Advisory and assistance services are also needed as Reclamation lacks the expertise needed for various short-term design and construction technique analyses. Contracting with experts and consultants allows Reclamation to take advantage of a source that would be difficult to recruit and retain for short durations where services are needed.

Quarterly reports are requested from supervisors to verify number of days consultants and experts worked during the quarter and duties they performed during this period to assure they meet the intent of the Expert and Consultant appointment requirements. Also, internal controls are currently being implemented in accordance with the Federal Acquisition Regulation 37.207 and Reclamation Acquisition Directive 37.205.

Mr. **Bevill**. Thank you, Mr. Secretary, for your fine presentation.

GARRISON DIVERSION UNIT

Mr. Secretary, the President's fiscal year 1991 budget request does not contain any funds to continue the Garrison Diversion Unit project in North Dakota. Can you tell us why the Administration does not support continuation of this project?

Secretary **Lujan**. Yes, I can. In general, we are concerned with the economics of the project. But let me have the Commissioner answer that question in more detail for you, Mr. Chairman.

Mr. **Bevill**. Mr. Underwood, this is your first appearance before the Committee as Commissioner. We welcome you. I have your biographical sketch, and as is customary, I will be putting that in the record.

Secretary Sayre, this is also your first appearance. I have read your very impressive biographical sketch and we will put it in the record also.

Mr. **Sayre**. Thank you.

[The information follows:]

Biography of Dennis B. Underwood

Dennis Underwood was confirmed as Commissioner of Reclamation by the Senate on November 9, 1989, and sworn in on November 14. Mr. Underwood received a Bachelor of Science degree in 1966 in Civil Engineering from Norwich University, Vermont.

From 1978 to the present he served as Executive Director and Executive Secretary of the Colorado River Board of California. In those capacities he worked extensively with the seven Colorado River Basin states, International Boundary and Water Commission and Federal agencies on the development and management of water resources on the Colorado River. He planned, organized and directed studies and investigations on water rights, development, conservation, management, planning, quality, river operations, regulations and uses. He served as the California representative on state and Federal committees, prepared reports for use in court, state and Federal legislative hearings and controversies regarding interstate and international matters dealing with the Colorado River. He also represented the Board in negotiations with basin states, Federal, state and local agencies.

In 1975 he served as a consultant of the Food and Agriculture Organization, United Nations, in Rome, Italy. He conducted water resources quantity and quality management training for a team of engineers from Spain.

From 1966–1967 and 1969–1978 he served as a Water Resources Engineer in the California Department of Water Resources, Southern District. He participated in the statewide updates of the California Water Plan and studied plans for providing a long term water supply of adequate quality at a reasonable cost. He investigated effects of drought, groundwater conditions and reservoir carryover storage. He developed comprehensive basis water quality control plans for surface and groundwaters pursuant to the Federal Clean Water Act and California's Porter-Cologne Water Quality Control Act.

He served in Southeast Asia as the Northeast Thailand Project Officer with the 44th Engineers Group, Corps of Engineers, headquartered in Korat, Thailand, from 1967–1968. He also served in the New England Division, Corps of Engineers, Waltham, Massachusetts, from 1968–1969, during which he conducted water resource investigations.

Mr. Underwood and his wife Sally have residences in Santa Monica, California, and Arlington, Virginia.

Biography of John M. Sayre

John M. Sayre was confirmed by the Senate and sworn in as Assistant Secretary for Water and Science on October 10, 1989.

Mr. Sayre is a native of Boulder, Colorado. He graduated cum laude in economics from the University of Colorado in 1943, and received his J.D. degree from that institution in 1948. As an undergraduate he was elected to Phi Beta Kappa and was a member of other scholastic fraternities. Mr. Sayre served as an officer in the U.S. Navy from 1943 to 1946.

Mr. Sayre was in private practice with a law firm in Boulder, Colorado, from 1950 to 1966. From 1966 to 1989, he was a partner in the natural resources department of the law firm of Davis, Graham and Stubbs of Denver.

Mr. Sayre has served in a number of positions such as a charter member, and board member of the Colorado Water Congress; director of the Northern Colorado Water Conservancy District; Colorado director and national president of the National Water Resources Association; member of the American Water Works Association and the United States Committee on Irrigation and Drainage. Mr. Sayre is a member of the Colorado Bar Association, the Denver Bar Association, the Boulder County Bar Association, and the American Bar Association. He is also a Fellow of the American Bar Foundation and the Colorado Bar Foundation.

Mr. Sayre currently resides in Rosslyn, Virginia, with his wife Jean Miller Sayre.

Mr. **Bevill**. Now, Mr. Commissioner, we will recognize you.

Mr. **Underwood**. Thank you.

I am very honored to be here this morning. There are two prerequisites, basically, for continuation with the Garrison project. One is a repayment contract, the other is an environmental impact statement.

There have been some questions raised recently about the ability of the irrigators to repay or pay the operating costs of the project. In addition to that, the final environmental impact statement has not been completed on the project. There is still a part of the irrigation system, the Sykeston Canal, that has not been finally formulated.

Therefore, not being able to have these two components as prerequisites for construction, and considering the serious questions of the financial capabilities of the irrigators to pay the operating expenses, the Administration elected not to proceed at this time.

Mr. **Bevill**. All right.

SAFETY OF DAMS PROGRAM

Mr. Secretary, the Bureau of Reclamation's fiscal year 1991 budget request for the Safety of Dams Program includes work on Bureau of Indian Affairs dams. Why did you move the BIA Safety of Dams work to the Bureau of Reclamation?

Secretary **Lujan**. I would be glad to answer that question, Mr. Chairman. We want to do the best job that we can with it. Most of the work is done under contract with the Bureau of Reclamation anyway, and we thought that a direct route might be better. We are in the process of setting up meetings with Indian leaders to discuss the issue, and we will have more to say about that after those meetings.

Mr. **Bevill**. If you would like to add comments on that for the record, feel free to do so. I do have several other questions for you and the Commissioner that you can answer on the record.

[The information follows:]

QUESTIONS SUBMITTED BY THE HONORABLE TOM BEVILL FOR HONORABLE MANUEL LUJAN, JR., SECRETARY OF THE INTERIOR

GARRISON DIVERSION UNIT

Mr. Bevill. The FY 1990 Energy and Water Development Appropriations Act included $30,000,000 for construction of the Garrison project. How are those funds being utilized?

Mr. Lujan. I am informed the appropriated funds of $30 million have been reduced by $3,420,000 for Gramm-Rudman reductions and the application of underfinancing. The balance of $26,580,000 is scheduled to be used as shown below.

Dollars in Thousands

Feature	FY 1990 Estimates
Snake Creek Pumping Plant	$ 100
McClusky Canal	1,365
Sykeston Canal	100
New Rockford Canal	10,765
Oakes Test Area	1,100
Non-Indian Irrigation Facilities	197
Municipal, Rural, and Industrial Water	10,038
Wetlands Trust Fund	500
Fish and Wildlife Mitigation	-0-
Enhancement	3,040
Recreation Facilities	1,159
Non-Federal Contributions	- 2,990
Other Project Costs	1,206
Total	$26,580

As you know, the budget request proposes termination of activities on Garrison. Therefore, substantial changes in the schedule may be made consistent with future decisions regarding this project.

Mr. Bevill. If the Congress does not add funds to continue construction, will contracts have to be terminated? How much will that cost? Does the FY 1991 budget request contain those funds?

Mr. Lujan. Yes, I am informed that the construction contract on Reach 2 of New Rockford Canal scheduled to complete in FY 1991, will have to be terminated by the end of FY 1990 unless funds are available in FY 1991. Should the contract be terminated in FY 1990, we estimate the contractor will present a claim of about $4 to $6 million. The FY 1991 budget request does not contain any funds for the Garrison Diversion Unit.

NEW CONSTRUCTION

Mr. Bevill. Last year you testified that it is your policy to finish projects underway before initiating new ones. The Bureau's FY 1991 request for construction is almost $100 million lower than the FY 1989 request and $35 million less than last year's request. At what point will there be room in the Bureau's construction program to initiate new construction and continue projects like the Garrison Diversion Unit?

Mr. Lujan. The policy of completing projects substantially underway before initiating new ones exists in part because of the need to finish ongoing projects as efficiently as possible so most benefits can be realized and in part because of the requirement to comply with the law establishing deficit targets. The resumption of activities on projects depends on the improvement in the fiscal situation and on economics, including cost-sharing, and environmental feasibility of other projects. At that point, we expect the Administration and the Congress to work together to set budget priorities.

BUREAU OF INDIAN AFFAIRS SAFETY OF DAMS WORK

Mr. Bevill. Mr. Secretary. the Bureau of Reclamation's FY 1991 budget request for the Safety of Dams program includes work on Bureau of Indian Affairs' dams. Why did you move the BIA safety of dams work to the Bureau of Reclamation?

Mr. Lujan. Reclamation has been assisting the BIA with its dam safety program, on a reimbursable basis, since 1978 when it began to provide inspection services. More recently, Reclamation has performed, on a reimbursable basis, the initial examinations and evaluations of dams administered by BIA that would present a high or significant hazard to life or property in the event of failure. In fiscal year 1989, due to the severity of conditions at Coolidge Dam, and the potentially catastrophic consequences of dam failure, I approved steps to allow Reclamation to initiate emergency preconstruction work on that dam, and so informed your Committee. Your Committee responded to the situation by including $1.4 million in Reclamation's fiscal year 1990 appropriation to expedite construction on Coolidge Dam.

In its September 1989 report, the Department's Office of Inspector General concluded that BIA had not demonstrated an adequate commitment to its dam safety program and had made little progress in correcting documented deficiencies. The fact is that, although 23 of BIA's dams are currently among the top 50 dams on the Department's dam safety priority list, the only ongoing safety modification work on any BIA dam is the work being done by Reclamation at Coolidge Dam. The Department's proposal that funding for safety modifications on BIA dams be included in Reclamation's budget in fiscal year 1991 is intended to utilize and

ADVISORY AND ASSISTANCE SERVICES
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

(In Thousands of Dollars)

Account Title and Symbol		1989	1990	1991
Operation and Maintenance 14-5064-0-2-301				
I. Contractual Services				
Studies, Analyzes & Evaluations	B.A.	258	214	100
	Oblig.	258	214	100
	Outlays	200	224	126
Engineering & Technical Services	B.A.	0	0	30
	Oblig.	0	0	30
	Outlays	0	0	23
II. Personnel Appointments	B.A.	7	25	30
	Oblig.	7	25	30
	Outlays	6	21	25
TOTAL	B.A.	265	239	160
	Oblig.	265	239	160
	Outlays	206	245	174

Prepared: Jan. 12, 1990
Darrell Mach
343-4690

Appropriation	FY 1989	FY 1990	FY 1991
	(In thousands of dollars)		
Operation and Maintenance	187,731	209,315	231,516

The increase in program funding in FY 1990 over FY 1989 continues the emphasis on reducing the backlog of operation and maintenance and replacement work to meet essential water and power deliveries. The increased FY 1991 request continues these efforts and in addition, supports the Secretary's Stewardship policy efforts.

The activity area requiring advisory and assistance services are the Glen Canyon power rates study; Technical assistance for land suitability studies; and various hazardous waste, water quality, and wetlands projects.

These programs require state-of-the-art technology and individuals who are experts in their field to provide occasional or one-time advice and assistance. Since full-time availability is not necessary, access to this expertise through contracts with experts and consultants allows Reclamation to take advantage of a source that would be difficult to recruit and retain for the short duration where services are needed.

Quarterly reports are requested from supervisors to verify number of days consultants and experts worked during the quarter and duties they performed during this period to assure they meet with the intent of the Expert and Consultant appointment requirements. Also, internal controls are currently being implemented in accordance with the Federal Acquisition Regulation 37.207 and Reclamation Acquisition Directive 37.205.

ADVISORY AND ASSISTANCE SERVICES
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

(In Thousands of Dollars)

Account Title and Symbol		1989	1990	1991
General Administrative Expenses 14-5065-0-2-301				
I. Contractual Services				
Management & Professional Support Svcs.	B.A.	30	75	100
	Oblig.	30	75	100
	Outlays	27	71	98
II. Personnel Appointments	B.A.	121	150	180
	Oblig.	121	150	180
	Outlays	109	147	177
III.Advisory Committees	B.A.	15	18	18
	Oblig.	15	18	18
	Outlays	14	16	18
TOTAL	B.A.	166	243	298
	Oblig.	163	243	298
	Outlays	150	234	293

Prepared: Jan. 12, 1990
Darrell Mach
343-4690

Appropriation	(In thousands of dollars) FY 1989	FY 1990	FY 1991
General Administrative Expenses	48,313	47,311	51,431

The increased program request for FY 1991 relates to improved definition of Reclamation overall management requirements as well as support for the Secretary's Stewardship initiatives and the Take Pride in America program.

Under this appropriation, fiscal years 1990 and 1991 advisory and assistance services usage are expected to be somewhat higher than for FY 1989 due to increased activities for the Development and Implementation of the Management Organizational Development Program, and other administrative functions. The need for consulting services to provide expert advice will have an impact on the acceptance of various studies and programs in these highly visible and specialized areas. Other major programs where experts and consultants will be employed are in the administrative areas of ADP and financial services.

These programs require state-of-the-art technology and individuals who are experts in their field to provide occasional or one-time advice and assistance. Since full-time availability is not necessary, access to this expertise through contracts with experts and consultants allows Reclamation to take advantage of a source that would be difficult to recruit and retain for the short duration where services are needed.

Quarterly reports are requested from supervisors to verify number of days consultants and experts worked during the quarter and duties they performed during this period to assure they meet the intent of the Expert and Consultant appointment requirements. Also, internal controls are currently being implemented in accordance with the Federal Acquisition Regulation 37.207 and Reclamation Acquisition Directive 37.205.

Advisory committee membership

Members are appointed by the President to a commission. We anticipate the funding needs to increase only slightly in the current year and budget year. This will be due to a slight increase in activity by the Commissions.

	1989	1990 & 1991
U.S. Commission, Canadian River Commission	$ 280.00	$ 1,000.00
Klamath River Basin Compact Commission	$14,200.00	$15,000.00
Columbia River Compact Commission	$ 0.00	$ 1,000.00
Upper Colorado River Commission	$ 748.00	$ 1,000.00
	$15,228.00	$18,000.00

more directly recognize Reclamation's engineering and construction management expertise. BIA and the tribes will continue their involvement in decisions regarding priorities and the corrective actions to be taken, and the "638" contract process would continue to be utilized.

We need to keep in mind that the Department's responsibilities for Native Americans are assigned by law to me. I need to be able to delegate those responsibilities in a manner which most effectively and efficiently will carry out the law and serve our Indian constituents. Responsibilities for Native American programs are assigned throughout the Department - not just to BIA. In the case of dam safety, Reclamation should do the job - so we can move ahead promptly, as we're doing with Coolidge Dam.

Reclamation's fiscal year 1991 budget includes $9.1 million for this program, in addition to the $5.1 million requested for safety modifications on Coolidge Dam. The request will allow deficiency analyses on 5 dams, conceptual designs on 9 dams, final designs on 3 dams, and to initiate construction on 2 dams. Construction is scheduled to begin in 1991 on Black Rock and Dulce dams in New Mexico, which rank 4 and 5 respectively on the Department's overall priority list.

STRAWBERRY WATER USERS ASSOCIATION

Mr. Bevill. Have you complied with the provisions of P.L. 101-101 relating to the Strawberry Water Users Association?

Mr. Lujan. The Strawberry Water Users Association received the $15.0 million payment on October 6, 1989, and relinquished all contractual surface rights and interest for the 56,775 acres of project lands. Reclamation also conveyed its interest by 95 acres of quitclaim deed to the water users.

UMATILLA BASIN PROJECT, OREGON

Mr. Bevill. Last year in response to a question from our colleague Les AuCoin of Oregon, Commissioner Duvall described the Umatilla Basin Project as a "win-win project." In view of that appraisal of the project, why have no funds been requested in FY 1991 for construction of the project?

Mr. Lujan. The Administration has not requested funding for the Umatilla Basin Project in fiscal year 1991 because construction on the project is not substantially underway, and in order to allow more time to resolve other concerns about the project, including possible non-structural solutions.

AUBURN-FOLSOM SOUTH UNIT

Mr. Bevill. The justification material for the Auburn-Folsom South Unit of the Central Valley Project states that you have asked that the draft American River Water Marketing Environmental Impact Statement be revised. Why is the revision needed?

Mr. Lujan. The Bureau of Reclamation received over 2,000 comments on the American River, Sacramento River, and Delta Export water contracting draft EIS put out for public review late in 1988. The comments raised justifiable concerns about technical adequacy of the documents that influenced me to direct Reclamation to thoroughly evaluate the comments, and to revise and reissue the documents in draft form for a second public review. They are to be revised in light of three principles:

1) The States have the primary authority for determining basic water rights and entitlement on the basis of beneficial use, water quality, and other regional considerations. This principle of State primacy must be respected at the Federal level, so long as it is not inconsistent with Federal laws.

2) The Department of the Interior must carry out its mission as set out by the Congress in legislation and its legal obligations expressed in court orders.

3) In carrying out its obligations, the Department must do so in an environmentally sound manner. That effort is most effective if approached as a working partnership among the Federal Government, the State, water users, and concerned environmental, fish, and wildlife interests.

BUREAU OF INDIAN AFFAIRS SAFETY OF DAMS

Mr. Bevill. Please provide for the record an explanation of how responsibilities will be shared between the Bureau of Reclamation and the Bureau of Indian Affairs for safety of dams work on BIA dams.

Mr. Lujan. Reclamation will be responsible for inspection, analysis, engineering design, and accomplishment of corrective action to BIA dams. Reclamation will work closely with tribal governments and the BIA in setting priorities, and in the selection of corrective action alternatives for BIA dams. The BIA will continue to be responsible for the operations and maintenance for its irrigation projects, including the dams.

Mr. Bevill. Which agency will be responsible for prioritizing safety of dams work on BIA dams?

Mr. Lujan. The Department of the Interior Dam Safety Task Group, composed of senior Interior managers representing each Bureau with responsibility for dams, sets the priority with which corrective action is performed on Interior dams, including BIA dams. The Department of the Interior Dam Safety Priority Ranking System was developed to assure attention was given to the most serious dam safety problems. Generally, review and comment is provided through each Bureau's dam safety officers and the priority list is updated annually based upon data collected from the previous year's study and actions.

The priority ranking system provides a solid technical basis for annual decisions regarding funding and work schedules. Under the proposal to fund BIA dam safety work in the Reclamation budget, the BIA and the tribes would continue to be involved in decisions regarding priorities and the corrective actions to be taken.

Mr. Bevill. Please provide for the record a list of the 60 BIA dams for which inspection, analysis and corrective action will begin in FY 1991.

Mr. Lujan. The Bureau of Reclamation informs me that the request will allow it to perform inspections on 49 dams, deficiency analyses on 5 dams, conceptual designs on 9 dams, final designs on 3 dams, and to initiate construction on 2 dams, subject to satisfactory completion of work underway in fiscal year 1990. Construction is scheduled to begin in fiscal year 1991 on Black Rock and Dulce Dams in New Mexico, which rank 4 and 5 respectively on the Department's overall priority list. This request does not include Coolidge Dam, which is addressed separately in the budget.

The 49 dams involved in this request are as shown below.

[The information follows:]

SAFETY OF DAM INSPECTION WORK - FISCAL YEAR 1991

Name of Dam	Inspection	Deficiency Analysis	Concept Design	Final Design	Const.
Acomita	x				
Asaayi	x				
Black Lake	x				
Black Rock	x			x	x
Bonneau	x	x			
Bottle Hollow	x				
Captain Tom	x				
Crow	x				
Crow Creek	x		*		
Dulce	x			x	x
Elgo	x				
Equalizer	x				
Ganado	x	x	x		
Headgate Rock	x				
He Dog	x		x		
Hubbart	x				
Indian Lake	x				
Jocko	x				

SAFETY OF DAM INSPECTION WORK - FISCAL YEAR 1991, Continued

Name of Dam	Inspection	Deficiency Analysis	Concept Design	Final Design	Const.
Kicking Horse	x				
La Jara	x				
Lake Mescalero	x			x	
Lower Dry Fork	x				
Lower Mundo	x				
Lower Two Medicine	x				
Many Farms	x				
McDonald	x				
Mission	x				
Ninepipe	x				
Pablo	x				
Oglala	x		*		
Pablo	x	x			
Parmelee			x		
Pasture Canyon	x				
Ponca			x		
Ray Lake	x				
Rosebud	x		x		
Round Rock	x				
Santa Ana	x				
Standing Rock No.1	x		*		
Tabor	x				
Tsaile	x				
Tat Momolikot	x				
Tufa Stone	x				
Upper Dry Fork	x				
Washakie	x	x			
Weber	x	x			
Wheatfields	x				
White Clay	x		*		
Willow Creek	x				

* Work to be completed under P.L. 93-638 contract with A/E firm.

QUESTIONS SUBMITTED BY THE HONORABLE TOM BEVILL FOR DENNIS UNDERWOOD, COMMISSIONER, BUREAU OF RECLAMATION

FUTURE DIRECTION OF RECLAMATION

Mr. Bevill. Mr. Commissioner, the previous Administration initiated a "New Direction" for the Bureau of Reclamation that emphasizes nonstructural solutions to water resources problems. In what direction do you intend to lead the Bureau?

Mr. Underwood. My goal is consistent with the emphasis you mention. I want to see Reclamation continue as a national and international leader in water resources conservation with a stronger focus on water resources management, innovative planning, and resolution of issues, and professional stewardship of our activities. An increased emphasis on water quality concerns, handling our resources in an environmentally sound manner, and effective coordination with the States are high on my agenda as Commissioner. I welcome the exciting challenge that is ahead for the Bureau of Reclamation in making a major contribution to meeting those important goals.

CONSTRUCTION PROGRAM

Mr. Bevill. Do you believe the Bureau will have an active Construction Program five years from now?

Mr. Underwood. Yes. Inquiries about the quantity and quality of water availability often come to Reclamation. Some of the solutions to resolving those needs will require Federal cooperation and involvement. Because of the expertise Reclamation has, I fully expect there will be an active construction program five years from now, although the emphasis will shift from constructing large new projects toward more effective resources management.

WASHINGTON OFFICE

Mr. Bevill. We understand there are plans to upgrade the Washington office of the Bureau. What are your plans for the Washington office and why are changes needed?

Mr. Underwood. The Bureau of Reclamation implemented its reorganization in 1988 and now has almost 2 years experience with the current structure. Based on this experience, it is clear that some minor adjustments should be made to improve the Washington office. Although the number and basic functions will remain essentially the same, I intend to address some reporting relationships between the Washington and Denver offices and the level of expertise available in the Washington office. I also intend to encourage career rotation between the Washington office and the field to maintain a higher level of awareness of Reclamation issues at all levels.

NEW PLANNING STUDIES

Mr. Bevill. Please identify the nine new planning studies proposed for FY 1991 and give a brief description of each.

Mr. Underwood. The nine new studies with a brief description follows:

American River/Folsom South Conjunctive Use Optimization Study: The study would involve the coordinated operation of the Folsom Reservoir Project of the Central Valley Project, Lower American River, and adjacent areas in Sacramento and San Joaquin Counties. This conjunctive use study would evaluate plans for concurrent surface and groundwater use from existing storage developments at Folsom Reservoir, Pardee, Comanche and other tributary streams to meet Folsom South area water needs and provide suitable instream flows for fishery and recreation purposes in the lower American River. The study could establish water management plans for utilizing the available resources for areas in Sacramento and San Joaquin Counties from the American to the Mokelumne Rivers.

Drought Investigation: The study will identify activities and measures that may help reduce impacts of future droughts. Measures to be considered in FY 1991 will include the following areas: identification of legal and institutional constraints, water banking, drought severity levels, and acceptable shortage criteria for water users.

Idaho River Systems Management Program: The Bureau of Reclamation will cooperate with the Idaho Water Resources Department in an activity to formulate, adopt, and implement a comprehensive water plan for conservation, development, management, and use of waters within the State's river basins. The study encompasses key river basins in Idaho with special emphasis on central and southern Idaho. Reclamation will participate in basins or subbasins where its management and operational obligations are most apparent and where plan formulation and evaluation experience is beneficial.

Minidoka, North Side Pumping Division Drainwater Management Study: This study will address alternatives to the present practice of disposing of irrigation return flows through ground-water injection wells. Concern that groundwater resource may become contaminated has led to both ordered and voluntary closure of some of the wells. Because of the potential for groundwater contamination and further closure of some or all of the wells, an alternative to the present operation and method of disposing of the drainwater is needed.

New Mexico Regional Water Resources Study: The New Mexico Regional Water Resources Study encompasses eight of the hydrologic regions within the State of New Mexico. The 1976 report, "New Mexico Water Resources

Assessment for Planning Purposes" was prepared by the State of New Mexico and the Bureau of Reclamation in cooperation with other Federal and State agencies. Updated information is needed by water resource managers in making decisions on present and future water requirements and needs.

San Joaquin River Basin Resource Management Initiative: The Study location includes the entire San Joaquin River and Tulare Lake hydrologic basins of California. The basic objective of the study is to improve the water-related environment of the San Joaquin River Basin with particular emphasis on fisheries, wetlands, and water quality, while continuing the delivery of water supplies for M&I and agricultural purposes. The Initiative, which includes an EIS, will also examine price and conservation aspects of project operations to promote efficient and environmentally sound resource use.

Small Project Integration with CVP: The study area would be centered on the Solano Project service area in Solano County. However, because the objective of the study would be to integrate the Solano and Central Valley Projects, the study area would also include the entire Central Valley. There are several small projects that are located on tributaries to the Sacramento River. Each year's supply is determined by the runoff in the individual basin. By integrating the supplies with the rest of the CVP more flexibility would be provided to manage the water which in turn could result in a larger total supply for all of the water users. In addition, there is an opportunity to use these surface supplies with an already developed groundwater basin which underlies the county.

Upper San Pedro River Optimization Study: The project will study the water supplies in the upper San Pedro River basin in order to develop an area-wide water management plan. An overall management plan that recognizes both the needs of the local communities, Fort Huachuca and the needs of the Riparian National Conservation Area must be developed. Planning studies would focus on evaluating the existing studies and developing plans that more efficiently make use of the limited ground and surface water resources.

Wind River Basin Hydrology Study: The study area is in the Wind River Basin located in west central Wyoming, southeast of Teton National Park in Fremont County, Wyoming. A recent U.S. Supreme Court ruling on the Indians water rights impacts existing non-Indian irrigation because, except in high water years, there is not enough water available to satisfy reservation rights and other irrigator needs. Both the State and the Tribes are interested in cost sharing a study with Reclamation to resolve the water issues in the Wind River. A basin hydrology model would be required to make a proper evaluation of present and future water needs.

ALAMAGORDA, NEW MEXICO

Mr. Bevill. Last year Commissioner Duvall testified that it was premature to discuss any recommendations which might result from the Alamagorda, New Mexico, water supply study. Do you have anything to report at this time on that study?

Mr. Underwood. No. The City of Alamagorda is still preparing the final report.

ARKANSAS RIVER WATER MANAGEMENT

Mr. Bevill. Has the Kansas State Legislature appropriated funds for its share of the Arkansas River Water Management Improvement Study?

Mr. Underwood. Yes. Funds were appropriated in 1989, and the Kansas Legislature is currently considering additional funding to be available July 1, 1990.

COLORADO RIVER WATER QUALITY IMPROVEMENT PROGRAM

Mr. Bevill. The total estimated cost of investigations for the Colorado River Water Quality Improvement Program is about $12,000,000 less than the estimate presented last year. Please explain the difference.

Mr. Underwood. Three investigations (Uinta Basin Unit, Stage Two; Lower Gunnison Unit, North Fork; and the Lower Virgin Unit) were or will be concluded during 1989 and 1990 which accounts for the reduction in funds required.

GLENWOOD-DOTSERO SPRINGS UNIT OF THE CRWQIP

Mr. Bevill. What became of the proposals by private firms for a cogeneration and desalinization facility for the Glenwood-Dotsero Springs Unit of the CRWQIP?

Mr. Underwood. Reclamation has selected a private firm through negotiated, competitive, cooperative agreement process to desalt saline springs in the Glenwood, Colorado, area. The cogeneration/desalination proposal has been incorporated into the Glenwood-Dotsero Springs Unit of the CRWQIP as an industrial use alternative. Reclamation is in the process of preparing an environmental assessment and legislative background document that would allow consideration of amending the Colorado River Basin Salinity Control Act to authorize the Unit for operation. No Federal capital would be utilized for construction of the facilities but a long-term commitment of Federal funding would be required to pay for salt removal.

LOWER VIRGIN UNIT OF THE CRWQIP

Mr. Bevill. What is the status of the Lower Virgin Unit of the CRWQIP?

Mr. Underwood. The Lower Virgin River Unit study was discontinued due to the uncertainty in the construction schedule of the Nevada Power Company's proposed powerplant.

OTHER PROJECT INVESTIGATIONS, PROGRAM COORDINATION - CRWQIP IMPROVEMENT PROGRAM

Mr. Bevill. Please explain the large increase compared with last year's request for Other Project Investigations and Program Coordination of the CRWQIP?

Mr. Underwood. The Other Project Investigations and Program Coordination was increased from the amount initially scheduled in FY 1990 to allow Reclamation to be more responsive to salinity control cost-sharing opportunities as they arise. However, funding adjustments have been made in FY 1990 to initiate studies in the Hogback area along the San Juan River, New Mexico, and evaluate the effectiveness of surge irrigation for salinity control. These studies are being done in cooperation with the Geological Survey and the Department of Agriculture respectively. Reclamation will also continue evaluations of potential non-point salinity control on rangeland in cooperation with the Bureau of Land Management and the Department of Agriculture and conduct research and demonstration studies on watershed management in cooperation with the Bureau of Land Management. After the funding adjustments, the funding levels for FY 1990 and FY 1991 are quite comparable.

UINTA BASIN, UTAH, UNIT OF THE CRWQIP

Mr. Bevill. Are funds being utilized for the Uinta Basin, Utah, Unit of the CRWQIP as directed in the Conference Report accompanying P.L. 101-101?

Mr. Underwood. Reclamation's efforts to date have identified significant unresolved issues such that a preferred plan can not be identified. Accordingly, it is premature to perform detailed studies contemplated during the advance planning phase.

NATIONAL WATER MANAGEMENT DURING DROUGHT STUDY

Mr. Bevill. The Corps of Engineers is conducting a National Water Management During Drought study. Will you be coordinating your efforts under the new Drought Investigations study with the Corps?

Mr. Underwood. I have assigned a senior staff person to coordinate and exchange information with, not only the Corps of Engineers, but also with other entities who currently have concerns in this area. To date, Reclamation has participated with and provided input to the Western

Governor's Association, the Western States Water Council, and the Corps of Engineers. Reclamation is involved in planning for and participating in additional workshops being held by these organizations. As required by the Drought Assistance Act of 1988, Reclamation will also be submitting within the next few months, its report on recommendations on possible structural and non-structural means to help mitigate the effects of future droughts. Reclamation's proposed fiscal year 1991 drought investigation is a follow-up of this effort.

EAST CENTRAL OKLAHOMA WATER SUPPLY

Mr. Bevill. What were the results of the East Central Oklahoma Water Supply Study?

Mr. Underwood. One component of the study plan is a municipal and industrial delivery system from the proposed Parker Reservoir and existing Atoka and McGee Creek Reservoirs to meet the needs of 33 water-user entities in five counties plus the Oklahoma City vicinity. An average cost per 1000 gallons including treatment would be approximately $2.32 for delivery of about 80 million gallons per day. There is considerable variation in costs of serving different entities.

INVESTIGATION OF EXISTING PROJECTS

Mr. Bevill. Please explain the large decrease in the Investigation of Existing Projects program.

Mr. Underwood. The reduction basically results from Reclamation's new emphasis. Several of the proposed new starts concentrate on system optimization and operating efficiencies that normally would have been considered in the Investigation of Existing Projects program. In addition, several items normally considered in that program are not high priority within Reclamation's new emphasis. For these two reasons the FY 1991 request shows a decrease from FY 1990 for this program.

KIAMICHI HYDROPOWER STUDY, OKLAHOMA

Mr. Bevill. What were the results of the Kiamichi Hydropower study in Oklahoma?

Mr. Underwood. Results of the study show that none of the single-purpose run-of-the-river hydropower developments are justified under current evaluation criteria. Inclusion of a powerplant as an addition to a dam and reservoir project justified for other purposes could, however, be considered at several of the sites investigated.

LOUP RIVER BASIN

Mr. Bevill. Was the final report of the Loup River Basin completed last December as scheduled?

Mr. Underwood. The report is currently in the final review stage, and we expect the report to be completed by March 30, 1990.

MINOR WORK IN CONNECTION WITH COMPLETED PROJECT INVESTIGATIONS

Mr. Bevill. What is the source of the non-Federal funding shown for the Minor Work in Connection With Completed Project Investigations program?

Mr. Underwood. The non-Federal funding of $175,000 is a contribution from the Contra Costa County Water District for the Kellogg Unit study.

SNAKE RIVER OPERATIONS

Mr. Bevill. Please explain the requirement for the Bureau of Reclamation to participate in fish and wildlife impact studies associated with Snake River operations that are mandated by Public Law 100-216.

Mr. Underwood. The Bureau of Reclamation manages and operates extensive Federal water storage system in the upper Snake River basin. Operational decisions related to this system can directly affect Snake River fish and wildlife resources. The Department of Interior is a party to the impact studies mandated by Public Law 100-216, and, as an Interior agency, the Bureau of Reclamation is providing technical assistance and advice on the water supply aspect of the impact studies.

ALL-AMERICAN CANAL PROJECT

Mr. Bevill. Please describe the work being performed on the All-American Canal Project, California, under the Drainage and Minor Construction program.

Mr. Underwood. The All-American Canal Project, which is included in Drainage and Minor Construction in FY 1991, provides for data collection, design, and specifications preparation work for lining portions of the All-American and Coachella Canals that will be 100 percent non-Federally funded. This work will proceed only after successful completion of a 1-1/2 mile demonstration lining test in the Coachella Canal and completion of an EIS. The demonstration project utilizes a new technique being developed for installing a membrane lining covered with concrete while the canal is full of water and in full operation.

Mr. Bevill. Why is the project for lining the All-American and Coachella Canals being fully funded by local water users?

Mr. Underwood. Public Law 100-675 authorizes the lining of the All-American Canal with participating contractors providing 100 percent of the funding.

PRAIRIE BEND UNIT, NEBRASKA

Mr. Bevill. Why is no date given for completion of the preconstruction report for the Prairie Bend Unit, Nebraska, project?

Mr. Underwood. There is no current activity or schedule for preparation of a preconstruction report. The Planning Report/Draft Environmental Statement is completed and being filed with the Environmental Protection Agency.

Mr. Bevill. The budget request contains no funds for Advance Planning work. Are there any studies that will be ready to proceed to the advanced planning stage in FY 1991?

Mr. Underwood. There are no ongoing studies that we feel have progressed to the stage where advanced planning funds are needed.

PLAN FORMULATION STUDIES COMPLETED IN FY 1990

Mr. Bevill. How many plan formulation studies will be completed in FY 1990? Please provide for the record a list of those projects. What is the next step for those projects?

Mr. Underwood. There are 6 plan formulation studies and 6 special studies are scheduled for completion in FY 1990. A list follows:

1. Delta Water Management
2. Gregory County Hydroelectric Pumped Storage
3. High Mountain Aquifer Study
4. Kansas River Basin Water Management Study
5. Loup River Basin
6. Northwest Oklahoma Water Supply Study
7. Offstream Storage
8. Refuge Water Supplies
9. San Joaquin Valley Conveyance
10. Seminoe Dam Modifications
11. South Platte River Operation Study
12. Teton Dam Reappraisal

The next step would depend on the study findings and interest of local sponsors. If there is sponsor support a Federal interest, and appropriate cost-sharing, and the study shows the project to be feasible, project authorization would be the next step.

CONSTRUCTION PROJECT COMPLETION FY 1990 AND FY 1991

Mr. Bevill. Will any Bureau of Reclamation construction projects be completed in FY 1990 or FY 1991?

Mr. Underwood. Yes. A total of nine construction projects will be completed in FY 1990. Two major projects; the Columbia Basin Project, Third Powerplant, and the WEB Rural Water Development Project will essentially be completed. Work will also be completed on three Drainage and Minor Construction projects: The All-American Canal Project, the Glendo Unit, Pick-Sloan Missouri Basin Program, and the Weber Basin Project. Three Rehabilitation and Betterment projects will be finished in FY 1990: Moon Lake Project, Strawberry Valley Project, and Uncompahgre Project. Under the Safety of Dams program, work will be completed on the Foss Dam, Washita Project, Oklahoma.

During FY 1991, a total of eight projects are projected for completion. The Title I Division of the Colorado River Basin Salinity Control Projects at Yuma, Arizona, is scheduled to be completed. Two Rehabilitation and Betterment projects: Highland-Hanover Division and Upper Bluff Division, Pick-SLoan Missouri Basin Program, will be completed. Four Drainage and Minor Construction projects; Brantley; Chief Joseph Dam, Oroville-Tonasket; Gila; and McGee Creek will be completed. Also, one Safety of Dams project, Jackson Lake Dam, will be completed.

PRECONSTRUCTION ACTIVITY

Mr. Bevill. At what point does a project move into the "preconstruction activity" stage?

Mr. Underwood. After a specific project has gone through the feasibility and Definite Plan Report process, under the General Investigations program, a determination is made on whether the project should be recommended for construction. In order for a project to receive funding for preconstruction activity, which is under the Construction Program, it must be authorized for construction. Once the project receives authorization, funds for preconstruction activity can be requested.

COLORADO RIVER BRIDGE CROSSING

Mr. Bevill. Were funds for preconstruction activities for the Colorado River Bridge Crossing, Arizona and Nevada, included in the FY 1990 budget request?

Mr. Underwood. No funding was included in our budget request for FY 1990. However, as noted in the Budget Justifications, $476,000 has been made available from carryover funds and fund transfers.

Mr. Bevill. When will the Colorado River Bridge Crossing project be ready for construction?

Mr. Underwood. Depending on the progress in completing preconstruction activities, negotiation of acceptable cost-sharing agreements, and the availability of future funding, the earliest a construction contract for the Colorado River Bridge Crossing Project could be awarded would be late fiscal year 1992.

SOUTHERN ARIZONA WATER RIGHTS SETTLEMENT ACT

Mr.Bevill. Will you be able to comply with the requirement of the Southern Arizona Water Rights Settlement Act that delivery of water to the Tohono O'Odham Nation begin prior to October 12, 1992?

Mr. Underwood. Probably not. The Southern Arizona Water Rights Settlement Act of October 12, 1982, requires delivery of water to the Tohono O'Odham Nation to begin prior to October 12, 1992, 10 years after passage of the Act. Construction on the Schuk Toak component of the project will start this fiscal year, but the total project can not be completed by the October 1992 deadline.

We have not initiated construction on San Xavier District components of the development because the District, a political subdivision of the Nation, advocates further studies. Discussions are underway, both within the Department and with the Nation, regarding their current position on the project and how to resolve these issues.

COLORADO RIVER BASIN SALINITY CONTROL PROJECTS - TITLE I DIVISION

Mr. Bevill. Please provide for the record a brief description of how the Yuma Desalting Plant will operate. The justification material indicates that the plant has an authorized capacity of 96 million gallons per day. Why is the plant only being constructed at this time to a capacity of 73 million gallons per day?

Mr. Underwood. The physical structure of the desalting plant has been built for a capacity to treat about 97,000 acre-feet of water per year having about 3,000 parts per million of total dissolved solids. As such, the plant could produce about 68,500 acre-feet of product water per year with about 300 parts per million and about 29,000 acre-feet of reject water per year at about 10,000 parts per million.

Wellton-Mohawk drainage is expected to total about 108,000 acre-feet annually when the desalting plant becomes operational. About 10,000 acre-feet of raw untreated drainage water will be blended with desalting plant product water for return to the Colorado River. The desalting plant ensures that the salinity of this water will average not more than 115 parts per million greater than the salinity of water arriving at Imperial Dam. This will bring the salinity level of the water arriving at Mexico into accordance with provisions of Minute No. 242 of the International Boundary and Water Commission.

The installation of treatment equipment used to treat the water is being limited to 73 gallons per day as a result of the irrigation efficiency improvement program for the Wellton-Mohawk Irrigation and Drainage District which has significantly reduced the quantity of water to be treated. This program was authorized as part of Title I of the Colorado River Basin Salinity Control Act to reduce irrigation drainage return flows from WMIDD. The reduced volume of return flows would reduce the planned size and annual operating costs of the desalting plant. A 73 million gallons per day plant constructed in modular fashion so it can be expanded to 93 million gpd satisfies the requirements of the Salinity Control Act, P.L. 93-320, and Minute No. 242.

BOULDER CANYON PROJECT - VISITORS FACILITIES

Mr. Bevill. In FY 1990, $12,000,000 was appropriated for the Boulder Canyon Project facility improvements. Why are you only allotting $6,832,000?

Mr. Underwood. Only $6,832,000 was allocated in fiscal year 1990 for the Boulder Canyon Project facilities improvement due to the delay in the scheduled award of the Elevator Shaft contract. All bids received in the first bid opening were higher than anticipated and in accordance with regulations all had to be rejected. A second bid opening will be required.

AUBURN-FOLSOM SOUTH UNIT

Mr. Bevill. Please elaborate on the proposal by the American River Authority for construction of Auburn Dam and the status of your negotiations with the American River Authority?

Mr. Underwood. In September 1988, the American River Authority proposed using its "best efforts" to provide the proceeds for financing the water and power portions of a multipurpose dam. The proposal also suggested that the project's irrigation water supplies be financially integrated into the Central Valley Project. In response to this proposal, former Interior Assistant Secretary James W. Ziglar, established a team in October 1988, ". . . to negotiate with interested California parties, and, in particular, the American River Authority on its $700 million dollar cost-sharing proposal for a multi-purpose Auburn Dam."

The ARA's proposal included provisions for Federally guaranteed, tax-exempt debt. However, under current Administration policy, the Department can neither support guaranteeing tax-exempt obligations nor entering into water project financing agreements which state or imply it guarantees payment on debt (either the interest or principal) incurred by non-Federal entities. The CVP water users have reported that they cannot financially integrate the project into the CVP.

As such, the Bureau is not currently involved in "negotiations" with the American River Authority, but is working with it to determine if cost-sharing commitments can be developed, and if the water and power can be marketed. If local cost-sharing arrangements for a multipurpose dam are secured, the Bureau will offer its technical and engineering expertise to project sponsors.

SAN FELIPE DIVISION

Mr. Bevill. What is the status of the investigation underway for the Watsonville subarea of the San Felipe Division of the Central Valley Project?

Mr. Underwood. To date, the investigation has been divided into three parts: development of the groundwater flow and quality models, development of the Basin Management Plan, and supplemental water source analysis.

Information for the data management system has been collected and finalized. The data management system is the data base which will be used to run the water flow and water quality models. Both the water flow and quality models have been developed and are presently being calibrated. Completion of these models is anticipated in April 1990. Model runs will then be compared with the safe yield in order to estimate the amount of overdraft. The overdraft determination is expected to be completed in July 1990.

The Pajaro Valley Water Management Agency has developed a preliminary Basin Management Plan. The Basin Management Plan is anticipated to be completed in March 1991.

The estimated yield, preliminary cost, and other screening criteria are presently being developed for 18 potential sources of supplemental water including San Felipe. Once the overdraft is identified, the 18 sources will be screened down to four to six alternatives to be carried forward for detail evaluation. If one of the alternatives includes a Federal project, Reclamation will continue their investigation. Otherwise, Reclamation will prepare a concluding report and other San Felipe users will be given the first right of refusal of the 19,900 acre-feet of the San Felipe water.

KESTERSON RESERVOIR

Mr.Bevill. What is the status of the final cleanup plan for Kesterson Reservoir?

Mr. Underwood. The final cleanup plan was approved by the California State Water Resources Control Board on September 21, 1989. The approval stipulated that an annual site management plan for Kesterson Reservoir be submitted for approval to the California Regional Water Quality Control Board. The final cleanup plan is composed of three elements:

a. Active site management to minimize potential exposure of wildlife to selenium remaining at the Reservoir;

b. Continued monitoring to verify lack of impacts of selenium to wildlife or groundwater; and

c. Continued research into effective means to safely manage and dissipate the remaining selenium inventory at the Reservoir.

The Bureau of Reclamation is currently operating under this approved cleanup plan. The 1990 site management plan is in preparation for submittal to the Regional Board.

Mr. Bevill. What are the results of the report on the viability of volatilization as a method of cleaning up Kesterson Reservoir?

Mr. Underwood. Microbial volatilization continues to look very promising as a remediation technique at Kesterson Reservoir for those areas with a high concentration of selenium at or near the surface. However, the research results are still inconclusive on several key issues relevant to large scale implementation of the technique at Kesterson. These issues include: the time required for cleanup, and the intensity of management needed to achieve projected or desired volatilization rates (irrigation schedule, tillage schedule, effect of varying quality of irrigation water, etc.). Because of the promising results thus far as well as the remaining questions concerning the technique, a pilot scale - 2 acre test is scheduled to be implemented this year.

ARROYO PASAJERO, SAN LUIS UNIT

Mr. Bevill. Please describe the asbestos problem at Arroyo Pasajero in the San Luis Unit of the Central Valley Project. What will it cost to solve the asbestos problem?

Mr. Underwood. Runoff higher than originally anticipated, erosion off of natural formations, and abandoned asbestos mines in the watershed have caused flooding by asbestos laden water into the San Luis Canal. Use of the drain inlets into the Canal in the past to control cross drainage in the Arroyo Pasajero area has increased asbestos levels in the water supplies and the soils in the ponding area next to the canal.

Alternatives to control flooding and air pollution are currently under study. The current preliminary cost estimates for option to control flooding ranges up to $120 million.

Mr. Bevill. What will the land that you propose to acquire under the San Luis Unit of the Central Valley Project in FY 1991 for disposal of sediment be used for?

Mr. Underwood. The purchased land will primarily be used for flood control. A report is being completed analyzing alternative methods of maintaining the land. Methods being considered are planting cover crop to reduce asbestos emission and provide weed and insect control; leasing back to farmers; and wildlife habitat.

Mr. Bevill. What is the status of your efforts to develop a long-term plan for San Joaquin Valley drainage?

Mr. Underwood. The interagency team for the San Joaquin Valley Drainage Program is scheduled to conclude its work and issue its final report and recommendations by September 30, 1990. A court judgment entered in 1986, referred to as the Barcellos Judgement, settling lawsuits involving landowners, Westlands Water District, and the Federal Government (Department of the Interior, Bureau of Reclamation), is scheduled to be adopted and submitted to Westlands Water District by December 31, 1991. The San Luis Unit Drainage Program is working closely with and will utilize the data, findings, and recommendations of the SJVDP to develop a drainage service plan for the San Luis Unit in accordance with the Judgement.

LOWER GUNNISON BASIN WATER PROJECT

Mr. Bevill. Are you proceeding with construction of the Lower Gunnison Basin Winter Water, Colorado, project as directed in House Report 101-96? What is the total cost of the work?

Mr. Underwood. Yes. We entered into a contract with the Tri-County Water Conservancy District for construction of off-farm facilities. They have begun work and are proceeding satisfactorily. We also have entered into a contract with the Uncompahgre Valley Water Users Association for construction of on-farm facilities. They are also proceeding at a satisfactory rate. We currently estimate the total cost of the project that will be constructed at this time as $25.9 million. The balance of the project consisting of the rest of the Lower Gunnison Unit, CRBSCP with a cost of $143.3 million, is indefinitely deferred.

MNI WICONI RURAL WATER SUPPLY PROJECT

Mr. Bevill. How are the funds provided for the Mni Wiconi Rural Water Supply, South Dakota, in FY 1990 being utilized?

Mr. Underwood. In FY 1990, the Bureau is working with the Oglala Sioux Tribe, the Lyman-Jones Rural Water Development Association, and West River Rural Water System, Inc. to develop a cooperative agreement for the Mni Wiconi Project. The agreement will address the requirements for a final engineering report, NEPA compliance, water conservation plan, and operation and maintenance of the system, as well as preconstruction and construction activities.

Mr. Bevill. Why are no funds being requested in FY 1991 to continue the Mni Wiconi project?

Mr. Underwood. Since the Mni Wiconi Project is not substantially underway, and since the Administration has a number of concerns about cost-sharing and other aspects of the Project, it was not considered effective use of Federal funds to provide for funding of this project in FY 1991. In addition, there appears to be questionable support for a portion of the project by its beneficiaries based on a recent referendum vote by the members of the Oglala Sioux Tribe.

COLUMBIA BASIN PROJECT

Mr. Bevill. Total federal obligations for the Columbia Basin, Washington project show a $400 million increase over the amount shown last year. Please explain the increase.

Mr. Underwood. The cost of the project has been increased due to the effects of repricing, indexing, and drainage costs. Because portions of the previous estimates presented in the 1990 Justification dated back to 1963, new unit prices were developed for the deferred and bypassed lands, East High Canal, and the East Low Canal Extension.

YAKIMA FISH PASSAGE AND PROTECTIVE FACILITIES

Mr. Bevill. Why has completion work on the Yakima Fish Passage and Protective Facilities project been moved to the Drainage and Minor Construction Program?

Mr. Underwood. One of the Bureau's long-standing policies has been to move projects to the Drainage and Minor Construction Program when work is nearing completion and funding requirements are reduced. The Yakima project fits those criteria, because the construction of a screen stop and an office addition are the only requirements to essentially complete this project.

VELARDE COMMUNITY DITCH PROJECT

Mr. Bevill. What is the status of the work under the Drainage and Minor Construction program on the Velarde Community Ditch project?

Mr. Underwood. National Environmental Protection Agency compliance was completed by a Finding of No Significant Impact dated April 15, 1988. The contract for Alcalde Acequia, Schedule 1, and other minor contracts will be awarded and are scheduled for completion in fiscal year 1990. No work on the canals for the primary distribution system is currently scheduled.

RECREATION FACILITIES AT EXISTING RESERVOIRS

Mr. Bevill. The FY 1991 Drainage and Minor Construction Program includes a new project for Recreation Facilities at Existing Reservoirs. Is local cost sharing required for construction of those facilities?

Mr. Underwood. Public Law 89-72, the Federal Water Project Recreation Act of 1965, requires that matching funds be provided for recreation facilities at existing reservoirs.

WETLANDS DEVELOPMENT

Mr. Bevill. What is your authority to undertake the new Wetlands Development project included in the Drainage and Minor Construction Program?

Mr. Underwood. It is in response to President Bush's February 9 budget message in which he committed to a national goal of "no net loss" of wetlands. He also laid out a set of principles which included a directive to strengthen "...existing Federal programs and regulations that protect, maintain, and restore wetlands." With this in mind, Reclamation has proposed a wetlands program based on an array of laws imparting authority to the Secretary of the Interior. For example, various Reclamation authorities concerning land classification and certification, protection of project lands and water conservation, taken together with the provisions of other laws such as the Fish and Wildlife Act, as amended, and the Fish and Wildlife Coordination Act, provide an adequate basis of authority for this activity.

REHABILITATION AND BETTERMENT PROGRAM

Mr. Bevill. Is work proceeding on the projects in the rehabilitation and betterment program that were added by the Congress in FY 1990?

Mr. Underwood. Yes. The projects are the Highland-Hanover and Upper Bluff Divisions of the Pick-Sloan Missouri Basin Program in Wyoming and the Glasgow and Malta Divisions of the Milk River Project in Montana. Work is being conducted on all four of these projects in fiscal year 1990 and we are requesting $1.2 million to continue construction work on these projects in fiscal year 1991.

SAFETY OF DAMS

Mr. Bevill. Why is the dam modification for Coolidge Dam, San Carlos Irrigation Project, not included under the Safety of Dams Act?

Mr. Underwood. The safety of dams modification work on Coolidge Dam is being performed under the authority of the Reclamation Safety of Dams Act of 1978, as amended. The 1984 amendments provided for the inclusion of Coolidge Dam, a Bureau of Indian Affairs dam, within the scope of the Act, but failed to provide an increase in the authorized appropriations ceiling to cover the estimated cost of the needed work. Therefore, the fiscal year 1991 request includes appropriation language which provides, "That all costs of the safety of dams modification work at Coolidge Dam, San Carlos Irrigation Project, Arizona, performed under the authority of the Reclamation Safety of Dams Act of 1978 (43 U.S.C. 506), as amended, are in addition to the amount authorized in section 5 of said act."

Mr. Bevill. What is the status of safety of dams work on Little Panoche Dam and Los Banos Dam, which are features of the Central Valley Project, California?

Mr. Underwood. For both Los Banos and Little Panoche Dams, early warning systems will be developed to protect downstream residents from overtopping of the dams during large flood events. The work is scheduled to be performed in fiscal year 1990.

Mr. Bevill. What is the status of Safety of Dams work on the Twin Buttes Dam, San Angelo Project, Texas?

Mr. Underwood. Modification work on the Twin Buttes Dam has been suspended pending the completion of a new study on the foundation seepage problems and further review of the hydraulic deficiencies.

ATMOSPHERIC WATER RESOURCES MANAGEMENT PROGRAM

Mr. Bevill. Have you had any proposals from non-Federal sources to continue the Atmospheric Water Resources Management Program?

Mr. Underwood. The Bureau of Reclamation has received eleven letters expressing interest to share costs with Reclamation in a program to develop weather modification technology as a non-structural water supply augmentation alternative. These letters, from water resource and power agencies in nine States, represent a total commitment of over $14 million in non-Federal funding for cost-shared demonstration and technology transfer projects. It is anticipated that those non-Federal interests which benefit from cloud seeding should be interested in continuing the program by funding research in return for obtaining the results of the regions.

GLOBAL CLIMATE CHANGE PROGRAM

Mr. Bevill. What is the basis of the total cost estimate presented for the Global Climate Change program?

Mr. Underwood. The $26 million total estimated cost was developed according to what Bureau of Reclamation technical staff believe would be needed to study the possible global climate change effects on watersheds in the 17 Western States.

These studies are part of the Administration's overall Global Change Research Program. They would identify watersheds in the 17 Western States that could be adversely impacted by global climate change, develop water resource management strategies to deal with possible change, and conduct research to bridge the gap of uncertainty between global circulation model predictions and hydrologic models.

COLEMAN NATIONAL FISH HATCHERY

Mr. Bevill. Has responsibility been established for rehabilitation of the Coleman National Fish Hatchery in California? What work is planned for rehabilitation and repair of the hatchery?

Mr. Underwood. Reclamation constructed the Coleman National Fish Hatchery in 1943 to aid in the mitigation of the loss of natural spawning areas caused by the construction of the Shasta and Keswick Dams. Under a 1948 agreement the Bureau transferred the responsibility for operation, maintenance, and rehabilitation to the Fish and Wildlife Service. It has been determined that the FWS will be responsible for the rehabilitation of the hatchery.

Over the years, the facilities at the hatchery have deteriorated and efficiencies and production have declined. It is our understanding that the FY 1991 budget submitted by FWS, includes three proposed areas of activity including a pollution abatement system, a water sterilization system, and an intake structure at Battle Creek #3.

ARBUCKLE PROJECT - STATUS

Mr. Bevill. What is the status of work on the Arbuckle, Oklahoma, project?

Mr. Underwood. In fiscal year 1990, the $25,000 available on this project is being used for basic data gathering by the Bureau and the U.S. Geological Survey. That work is ongoing.

FRANKLIN D. ROOSEVELT LAKE SHORELINE CLEANUP

Mr. Bevill. The FY 1990 Energy and Water Development Appropriation Act included $736,000 in the operation and maintenance program for shoreline erosion control and cleanup efforts at Franklin D. Roosevelt Lake in Washington. What is the status of this work?

Mr. Underwood. Reclamation has met with representatives of the Colville Confederated Tribes, Spokane Indian Tribe, Bureau of Indian Affairs, and the National Park Service to develop criteria for debris removal and shoreline protection. The initial area for debris removal will be a 10-mile reach from near the Inchelium ferry landing to Barnaby Island of which a portion involves placement and anchoring tree bundles for fisheries habitat. An Interagency Agreement between Reclamation and BIA is scheduled for execution by May 1990 which will provide funds to BIA to contract with the Colville Confederated Tribes to accomplish the program.

Mr. Bevill. Have you included funding in your request to continue this work in FY 1991?

Mr. Underwood. Yes. We have included $1.0 million in the budget request to continue this program in FY 1991.

LOAN PROGRAM

Mr. Bevill. Please provide for the record a list of the currently approved projects under the Loan Program.

Mr. Underwood. At this time there are no currently approved loan applications that are not funded in the FY 1991 budget.

BUSINESS SYSTEMS ACQUISITION PROJECT

Mr. Bevill. What is the status of the Business Systems Acquisition Project?

Mr. Underwood. In fiscal year 1989, $3.5 million was expended for acquisition of peripherals and software with the remaining $.5 million to be expended in fiscal year 1990 on the purchase of the mainframe, remaining peripherals, and maintenance. The Request for Proposals for the mainframe closed in December 1989 and contract award is expected in April 1990. The 1990 appropriation of $7 million is expected to be adequate to finance the award.

PROJECTS READY FOR CONSTRUCTION

Mr. Bevill. Do you have any projects that will be ready to proceed to construction in FY 1991?

Mr. Underwood. The only authorized project with sufficient preconstruction activities completed and prerequisites met is the Umatilla Basin Project, which the Administration doeos not propose to fund in fisal year 1991.

COLUMBIA BASIN PROJECT

Mr. Bevill. Are your performing the work described in Senate Report 101-83 for the Columbia Basin Project?

Mr. Underwood. Yes. We are. The report language directed the Bureau of Reclamation to use $300,000 of Columbia Basin funds in fiscal year 1990 to complete the ongoing Environmental Impact Statement for the project and an additional $225,000 to conduct the Franklin County roads study.

A Draft Environmental Impact Statement was filed September 30, 1989. Public hearings were held in November 1989 and public review was completed on December 31, 1989. As a result of comments on the draft, it has become necessary to prepare a supplement to provide additional information on fish and wildlife and other issues. The supplement is scheduled to be filed in November 1990 and the Final Environmental Impact Statement is planned for completion by September 1991.

Work on Franklin County roads study is ongoing. We have requested in our budget before you $225,000 to continue this study which should be completed in fiscal year 1992.

Mr. Bevill. The Chair recognizes Mr. Myers.

MR. MYERS' OPENING REMARKS

Mr. Myers. Mr. Chairman, thank you.

Mr. Secretary, welcome back to the Hill, which you should never have left.

Mr. Bevill. As a matter of fact, if I may interrupt John, things haven't been right since you left.

Secretary Lujan. I keep getting those reports, Mr. Chairman.

Mr. Myers. My Congressional District isn't impacted by the Bureau of Reclamation and the things that the Department of the Interior does for us, I really don't want done, such as designating some mosquito-infected swamp as a national landmark and some little creek as a wild and scenic river.

Those things we don't want to have done for us. We appreciate your efforts, but would you not be so kind? Therefore, at this time, I will yield my time to Mrs. Smith, whose District is affected by programs of the Bureau of Reclamation.

Secretary Lujan. I understand that you did partake of some of the natural splendor that we have to offer, that you went to the Grand Canyon and you enjoyed it.

Mr. Myers. They said I would have to come back to go down in it.

Secretary Lujan. Those are some of the things that we do.

Mr. Myers. What about the smoke coming in from that generating plant, the Navajo Powerplant?

Secretary Lujan. I don't think I should have gotten into that subject. I shouldn't have mentioned it.

Mr. Myers. You all heard who said it. Probably you are right.

Mr. Bevill. The Chair recognizes Mrs. Smith.

MRS. SMITH'S OPENING REMARKS

Mrs. Smith. Thank you, Mr. Myers and Mr. Chairman.

Welcome again to my good, long-time friend and colleague, Secretary of the Interior Manuel Lujan, and welcome to you Mr. Underwood. We are glad to have both of you here.

Mr. Secretary, it is so good to have in the President's Cabinet a friend of the court, so to speak. I want to first commend you on your excellent judgment in deciding to come out and be the star attraction for our "Wings Over the Platte" celebration on March 24. I can hardly wait to get you there and have your picture taken with some of the 9 million ducks, geese and sandhill cranes that go through the heart of Nebraska just at the time that you are going to be out there.

I brought along for the record, Mr. Chairman, this picture showing that the migration of the cranes and other birds is like an hourglass. And right in the center is Nebraska where all those 9 million pass during the spring of the year. They know about the good life in Nebraska.

Mr. Bevill. Without objection, it will be made part of the record.

[The information follows:]

Migratory Birds on the Platte

The importance of the Platte to migratory birds.

The Platte River has long been a major stopover for migratory birds traveling the Central Flyway. The combination of a broad river, wet meadows and abundant food supply attracts millions of birds each year.

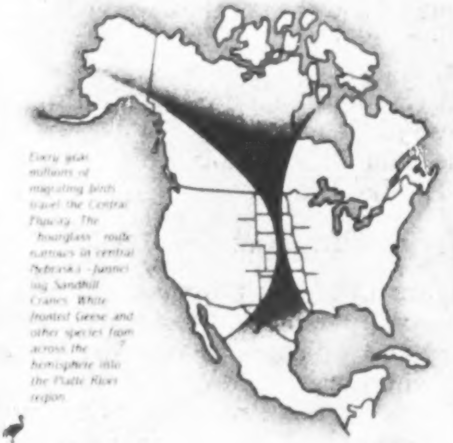
Six endangered species may be found on the Platte at different times of the year:

- Whooping Crane
- Least Tern
- Piping Plover
- Bald Eagle
- Eskimo Curlew
- Peregrine Falcon

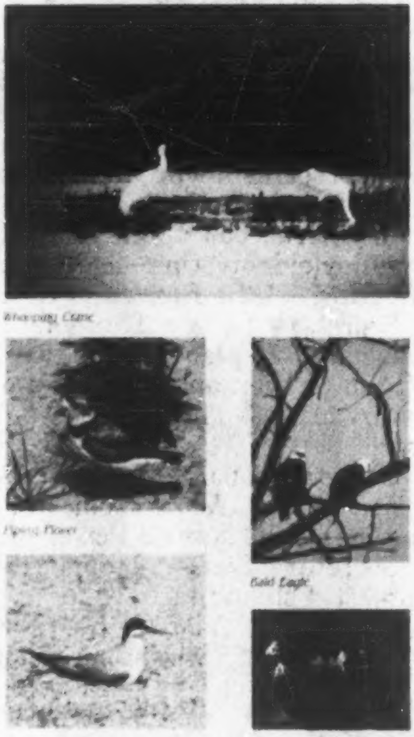
More than 300 species of migratory birds use the Platte River and adjacent wet meadows. Nearly 130 species actually nest in the Platte Valley.

Seven to nine million ducks and geese, as well as 500,000 Sandhill Cranes, rely on the area during the spring migration.

In fact, noted naturalist Roger Tory Peterson has identified the Platte River as one of the twelve best bird watching areas in the nation.



Every year millions of migrating birds travel the Central Flyway. The "hourglass" route narrows in central Nebraska - funneling Sandhill Cranes, White-fronted Geese and other species from across the hemisphere into the Platte River region.



Whooping Crane

Piping Plover

Bald Eagle

Least Tern

Peregrine Falcon

The Platte River is home to these endangered species at various times of the year.

Mr. Myers. How long do they stay there?

Mrs. Smith. Three or four weeks.

Secretary Lujan. A good, long time.

Mrs. Smith. I also want to welcome you Mr. Commissioner, and tell you what a pleasure it was to be with you down in San Antonio when I was made the Water Statesman of the Year. I also want to say before everyone that that opportunity came to me because of this committee and because of all your friendship and help.

Indeed, the committee took a big part in preparing the material that convinced those folks that I should receive the award this year, and I want you to know how much I appreciate it, Mr. Myers, Mr. Chairman, and all of you.

Also, I want the record to show my thanks to both Mr. Bevill and to our ranking minority member, Mr. Myers, for giving me the privilege of serving on this committee for 14 years. It has been a great experience. I will treasure it all my life, and I have many new friends that I would never have had if I hadn't had this privilege. I can't express in words how much I am going to miss all of you.

O'NEILL UNIT

Now, turning to the O'Neill Unit. With respect to the O'Neill Unit, there are four bills pending in the Congress to study or designate 76 miles of the Niobrara River as a wild and scenic river. They are S. 280, H.R. 761, H.R. 3823 and H.R. 1673. I would think, Mr. Secretary, that the Bureau would be concerned about the legislation and its possible impact on already long-established uses. I think you would be concerned about the long-established Federal investment in that area.

Included in my questions for the record is one asking you for an analysis of each of these bills with respect to their potential impact on the Federal Government's interest and its constituency. I hope you will include optimal legislative language that you feel would be necessary to properly protect the Federal interest in the river.

Secretary Lujan. We will do that.

DROUGHT

Mrs. Smith. Fine. And now I would like to turn to the drought situation.

You know, we have had a serious drought situation out in Nebraska. One of the people who testified before us the other day said it would take six years to get the water levels in the main stem reservoirs of the Missouri river back to normal.

Would you comment on the Department's policies for trying to deal with this difficulty?

Secretary Lujan. Well, it is a very, very difficult problem for us. We are very concerned about that, Mrs. Smith. The Bureau does have some work going on. Let me turn to Mr. Underwood for the specifics.

Mr. Underwood. I think you are quite aware that most parts of the West have been experiencing a drought for the last three or four years. There has been some substantial improvements in various parts, but the Platte River, central California, and the Rio

Grande are areas suffering substantial devastation in terms of storage and also precipitation for this year.

In the particular case of the Platte, we are still only into March. We have had some change-around in other parts, and we are hoping that the Good Lord will bless us with a better supply.

We have been working with the State Engineer, and we fully intend to protect all of the water rights of the water contractors.

Mrs. **Smith**. We appreciate that.

NORTH LOUP DIVISION

Now, may I turn to the North Loup Division? I want to express my deepest thanks to you, Mr. Secretary, to OMB Director Darman, and to President Bush, for reconfirming your commitment to finish this $355 million project, including the Davis Creek Dam and the laterals.

You know, last year, I walked into this hearing room at a time when the President's budget showed nothing for the Davis Creek Dam, which at that time was nothing more than a 23-acre hole, 50 feet deep, that you could have dropped the whole United States Capitol in and had plenty of room to spare. And there was no money to terminate the project, to finish it or anything.

But you listened. Mr. Darman listened. The President listened. And this year, I am so glad that we have $21.6 million to continue the project. I want to ask you today, is it your intention to continue to support completion of the project as authorized and directed by the Congress?

Secretary **Lujan**. Yes, it is, Mrs. Smith. I will tell you that I do remember very well coming here last year without those funds in the budget, and it is much more pleasant coming now than it—no, it was pleasant last year, I don't mean to say that it wasn't, but it is a double pleasure to be here this year, and yes, we do intend to support that project.

Mrs. **Smith**. I have a number of other questions, but I will submit them for the record, Mr. Chairman.

[The information follows:]

QUESTIONS SUBMITTED BY THE HONORABLE VIRGINIA SMITH

DROUGHT IN THE GREAT PLAINS STATES

Mrs. Smith. I want to turn first to the continuing drought in some of the northern Great Plains states, including western Nebraska. Please provide a discussion of the drought situation, departmental policies for dealing with it, steps taken or underway to head off snags in essential water transfers and allocations. Please identify your problems and how you plan to address them.

Mr. Lujan. I am informed that the water supply outlook for the northern Great Plains States is generally expected to be below normal. As of March 1, most reservoir storage is below normal. For Kansas and Nebraska projects in the Republican, Loup, and Niobrara River basins, project shortages are expected. Project shortages are likely on the North Platte Project in eastern Wyoming and western Nebraska. Project shortages are also expected in the Milk River and Beaverhead River drainages in Montana.

The Department of the Interior responds to drought situations to the maximum extent possible within the authorities provided by Congress, recognizing contractual arrangements with the existing water users and the specific laws of each State. The publication, Principles Governing Voluntary Water Transactions That Involve or Affect Facilities Owned or Operated by the Department of the Interior, issued in December, 1988, set the stage for proposed specific water transfers.

In an attempt to avoid possible snags in water transfers and allocations of the limited water supplies, or other possible actions, discussions are held between Reclamation and the local entities, State officials and other interested groups, to explain what our authorities are, what actions we can take, and what procedural or contractual requirements we must have to take a proposed action.

Congress has provided the Department with the authority to construct, operate and maintain, and provide water supplies from our reservoirs to specific geographic areas, and for specific beneficial purposes. On occasion, over the years, Congress has provided the Department with specific authorities to respond in additional ways to specific drought conditions; however, a time limitation has always been placed on these additional authorities. The latest emergency drought authority terminated on December 31, 1989.

PROJECT FUNDING REDUCTIONS

Mrs. Smith. Secretary Lujan, have you applied the FY 1990 sequestration reductions and underfinancing requirements evenly across the board on all projects -- or is the sequestration reduction application different from application of the underfinancing? Were all projects treated alike in these reductions? If some were cut more than others, please discuss your funding policies in this regard.

Mr. Lujan. I understand that the Gramm-Rudman-Hollings reduction was applied at a rate of 1.4 percent against each project in the Construction Program, as required by law. I have been told by the Bureau of Reclamation that the underfinancing is initially allocated in a uniform manner to all projects. However, to realize the basic intent of underfinancing, further adjustments were made so that underfinancing was allocated to the fullest extent possible to projects where delays are expected or can be accommodated.

Mrs. Smith. Please provide for the record, if not already shown concisely in your justification material, the amounts and percentages of these reductions project-by-project.

Mr. Lujan. I have been provided the following list of Reclamation construction projects that shows the sequestration and underfinancing reductions by project. The percentage reduction differs among projects because of the underfinancing policy mentioned.

[The information follows:]

3/1/90

US BUREAU OF RECLAMATION
FY 1990 CONSTRUCTION PROGRAM
($ in thousands)

PROJECT	Approved Congress	1.4% GR Reduction	Sequester Subtotal	Under-finance	FY 1990 Reduced Allotment	UF % of Congress Amount
AUBURN-FOLSOM SOUTH UNIT, CVP	1,700	(24)	1,676	0	1,676	0.0%
BELLE FOURCHE UNIT, P-SMBP	6,765	(95)	6,670	(25)	6,645	0.4%
BOULDER CANYON PROJECT	12,000	(168)	11,832	0	11,832	0.0%
BUFFALO BILL DAM MODF, P-SMBP	15,957	(223)	15,734	(1,530)	14,204	9.6%
CAP, NON-INDIAN DISTRIB SYSTEMS	15,932	(223)	15,709	(1,500)	14,209	9.4%
COLUMBIA BASIN, IRRIGATION FACIL	5,210	(73)	5,137	(715)	4,422	13.7%
GARRISON DIVERSION UNIT, P-SMBP	30,000	(420)	29,580	(3,000)	26,580	10.0%
GRAND COULEE, THIRD POWERPLANT	11,153	(156)	10,997	0	10,997	0.0%
HEADGATE ROCK HYDROELEC PROJECT	9,250	(130)	9,121	0	9,121	0.0%
INDIAN WATER RIGHTS SETTLEMENT	6,000	(84)	5,916	0	5,916	0.0%
MNI WICONI PROJECT	500	(7)	493	(50)	443	10.0%
MISCELLANEOUS PROJ PROGRAMS, CVP	7,850	(110)	7,740	0	7,740	0.0%
NORTH LOUP DIVISION, P-SMBP	23,030	(322)	22,708	(1,680)	21,028	7.3%
O'NEILL UNIT, P-SMBP	700	(10)	690	(500)	190	71.4%
SACRAMENTO RIVER DIVISION, CVP	6,325	(89)	6,236	0	6,236	0.0%
SAN FELIPE DIVISION, CVP	2,600	(36)	2,564	0	2,564	0.0%
SAN LUIS UNIT, CVP	5,428	(76)	5,352	0	5,352	0.0%
SAN LUIS VALLEY, CLOSED BASIN	7,755	(109)	7,646	(220)	7,426	2.8%
TRINITY RIVER RESTORATION PRGRAM	12,280	(172)	12,108	(1,368)	10,740	11.1%
UMATILLA PROJECT	650	(9)	641	0	641	0.0%
WEB RURAL WATER DEVELOPMENT PROJ	14,304	(200)	14,104	(1,400)	12,704	9.8%
YAKIMA FISH PASG/PROTECTV FACILS	400	(6)	394	0	394	0.0%
Subtot: Regular Construction	195,789	(2,741)	193,048	(11,988)	181,060	6.1%
HIGHLAND-HANOVER DIVIS, P-SMBP	150	(2)	148	0	148	0.0%
HYRUM PROJECT	1,101	(15)	1,086	(350)	736	31.8%
MILK RIVER, GLASGOW DIVISION	100	(1)	99	(10)	89	10.0%
MILK RIVER, MALTA DIVISION	250	(4)	247	(25)	222	10.0%
OGDEN RIVER PROJECT	2,050	(29)	2,021	(410)	1,611	20.0%
UPPER BLUFF DIVISION, P-SMBP	110	(2)	108	0	108	0.0%
WEBER BASIN PROJECT	1,100	(15)	1,085	(140)	945	12.7%
Subtot: Rehabil & Betterment	4,861	(68)	4,793	(935)	3,858	19.2%
ALL-AMERICAN CANAL PROJECT	560	(8)	552	0	552	0.0%
ARBUCKLE PROJECT	25	(0)	25	0	25	0.0%
BOISE, PAYETTE DIVISION	1,268	(18)	1,250	(982)	268	77.4%
BRANTLEY PROJECT	3,286	(46)	3,240	(50)	3,190	1.5%
CHIEF JOSEPH,OROVILLE-TONASKET	2,150	(30)	2,120	0	2,120	0.0%
COLO RIV FRONT WORK/LEVEE SYST	8,400	(118)	8,282	(1,692)	6,590	20.1%
CULTURAL RESOURCES ACTIVITIES	200	(3)	197	(5)	192	2.5%
EAST BENCH UNIT, P-SMBP	50	(1)	49	(5)	44	10.0%
FARWELL UNIT, P-SMBP	460	(6)	454	(45)	409	9.8%
FRYINGPAN-ARKANSAS PROJECT	6,034	(84)	5,950	(600)	5,350	9.9%
GILA PROJECT	830	(12)	818	(200)	618	24.1%
GLENDO UNIT, P-SMBP	1,200	(17)	1,183	0	1,183	0.0%
KLAMATH PROJECT	1,898	(27)	1,871	(524)	1,347	27.6%
LEADVILLE MINE DRAINAGE TUNNEL	4,550	(64)	4,486	(700)	3,786	15.4%
MC GEE CREEK PROJECT	2,770	(39)	2,731	(280)	2,451	10.1%
NEWLANDS PROJECT	800	(11)	789	0	789	0.0%
OAHE UNIT, P-SMBP	65	(1)	64	(6)	58	9.2%
OWL CREEK UNIT, P-SMBP	15	(0)	15	0	15	0.0%
VELARDE COMMUNITY DITCH PROJ	7,525	(105)	7,420	(5,680)	1,740	75.5%
WASHOE PROJECT	405	(6)	399	0	399	0.0%
WEBER BASIN PROJECT	1,005	(14)	991	0	991	0.0%
Subtot: Drainage and Minor Const	43,496	(609)	42,887	(10,769)	32,118	24.8%

PROJECT	Approved Congress	1.4% GR Reduction	Sequester Subtotal	Under-finance	FY 1990 Reduced Allotment	UF % of Congress Amount
BOISE, DEER FLAT DAM	2,900	(41)	2,859	0	2,859	0.0%
BRADBURY DAM, CACHUMA PROJECT	100	(1)	99	0	99	0.0%
CAP, SODP (Roosevelt Dam)	13,843	(194)	13,649	0	13,649	0.0%
DEPARTMENT DAM SAFETY PROGRAM	450	(6)	444	0	444	0.0%
HYRUM DAM, HYRUM PROJECT	145	(2)	143	(10)	133	6.9%
INITIATE SOD CORRECTIVE ACTION	3,655	(51)	3,604	0	3,604	0.0%
LITTLE PANOCHE DAM, CVP	225	(3)	222	0	222	0.0%
LOS BANOS DAM, CVP	675	(9)	666	0	666	0.0%
MINIDOKA, JACKSON LAKE DAM	691	(10)	681	0	681	0.0%
MODF REPORTS-PRECONSTR ACTIVITY	8,000	(112)	7,888	(2,458)	5,430	30.7%
O'NEILL DAM, CVP	45	(1)	44	0	44	0.0%
SALT RIVER, BARTLETT DAM	1,700	(24)	1,676	(200)	1,476	11.8%
SALT RIVER, HORSESHOE DAM	1,7[illegible]	(24)	1,676	(200)	1,476	11.8%
SALT RIVER, STEWART MOUNTAIN DAM	5,5[illegible]	(78)	5,500	0	5,500	0.0%
SAN ANGELO, TWIN BUTTES DAM	800	(11)	789	(300)	489	37.5%
SAN CARLOS, COOLIDGE DAM (BIA)	1,400	(20)	1,380	0	1,380	0.0%
SEEDSKADEE PROJECT (CRSPP)	250	(4)	247	0	247	0.0%
WASHITA, FOSS DAM	500	(7)	493	0	493	0.0%
W. C. AUSTIN, ALTUS DAM	470	(7)	463	(46)	417	9.8%
Subtot: Safety of Dams	43,127	(604)	42,523	(3,214)	39,309	7.5%
GROUNDWATER RECHARGE DEMO PRGM	7,323	(103)	7,220	(252)	6,968	3.4%
WATER TECH AND ENVIRON RESEARCH	4,500	(63)	4,437	0	4,437	0.0%
Subtot: Science & Technology	11,823	(166)	11,657	(252)	11,405	2.1%
CRBSCP, TITLE I DIVISION	19,060	(267)	18,793	(2,300)	16,493	12.1%
CRBSCP, GRAND VALLEY UNIT	8,239	(115)	8,124	(530)	7,594	6.4%
CRBSCP, LAS VEGAS WASH	50	(1)	49	0	49	0.0%
CRBSCP, PARADOX VALLEY UNIT	2,461	(34)	2,427	0	2,427	0.0%
CRBSCP, LOWER GUNNSN BASN STAGE1	2,500	(35)	2,465	0	2,465	0.0%
Subtot: Colo R Salinity Control	32,310	(452)	31,858	(2,830)	29,028	8.8%
ANIMAS-LA PLATA (CRSPP)	5,900	(83)	5,817	0	5,817	0.0%
CUP, BONNEVILLE UNIT (CRSPP)	116,170	(1,626)	114,544	(10,790)	103,754	9.3%
DOLORES PROJECT (CRSPP)	41,146	(576)	40,570	(1,840)	38,730	4.5%
Subtot: CRSP Sect 5 Construction	163,216	(2,285)	160,931	(12,630)	148,301	7.7%
CUP, JENSEN UNIT (CRSPP)	122	(2)	120	0	120	0.0%
DALLAS CREEK PROJECT (CRSP)	265	(4)	261	(10)	251	3.8%
Subtot: CRSP Section 5, D&MC	387	(5)	382	(10)	372	2.6%
CUP, UINTAH (CRSPP)	50	(1)	49	0	49	0.0%
Subtot: CRSP Sect 5 Preconstruct	50	(1)	49	0	49	0.0%

PROJECT	Approved Congress	1.4% GR Reduction	Sequester Subtotal	Under-finance	FY 1990 Reduced Allotment	UF % of Congress Amount
CUP, BONNEVILLE UNIT CRSP	13,669	(191)	13,478	(1,260)	12,218	9.2%
DALLAS CREEK PROJECT CRSP	230	(3)	227	0	227	0.0%
DOLORES PROJECT CRSP	498	(7)	491	(250)	241	50.2%
SEEDSKADEE PROJECT CRSP	4,178	(58)	4,120	(420)	3,700	10.1%
WAYNE N. ASPINALL UNIT, CRSP	553	(8)	545	(60)	485	10.8%
Subtot: CRSP Section 8 Fish & WL	19,128	(268)	18,860	(1,990)	16,870	10.4%
CUP, BONNEVILLE UNIT (CRSPP)	5,485	(77)	5,408	(250)	5,158	4.6%
DALLAS CREEK PROJECT (CRSPP)	2,808	(39)	2,769	0	2,769	0.0%
DOLORES PROJECT (CRSPP)	850	(12)	838	(120)	718	14.1%
Subtot: CRSP Sect 8 Recreation	9,143	(128)	9,015	(370)	8,645	4.0%
CENTRAL ARIZONA PROJECT	188,823	(2,644)	186,179	(4,345)	181,834	2.3%
Subtot: CAP LCRBDF	188,823	(2,644)	186,179	(4,345)	181,834	2.3%
Total Scheduled Program	712,153	(9,970)	702,183	(49,333)	652,850	6.9%
Underfinancing	(50,033)	700	(49,333)	distrib		
CONSTRUCTION ALLOTMENT REQUIRED	662,120	(9,270)	652,850			

NORTH LOUP DIVISION, NEBRASKA

Mrs. Smith. Turning now to the North Loup Division, Nebraska. I wish to express my deepest thanks and appreciation to you, to OMB Director Dick Darman, and to President Bush for reconfirming your commitment to finishing this $355 million project, including the Davis Creek Dam and all its related facilities as authorized.

Last year, you walked into our hearing room at a time when the President's budget showed nothing for the Davis Creek Dam, which at that time was nothing but a gigantic hole in the ground large enough to put the entire US Capitol in with room to spare. It was a 23-acre hole 50 feet deep. There was not even a request for money to terminate the project.

We are faced with being forced--for the first time in US history --to abandon a major Bureau multipurpose project.

But you listened, Director Darman listened, and the President listened. Our Subcommittee funded the project, as you required, and now I note with great satisfaction that the President's budget includes more than $21.6 million for construction in FY 1991. I have written letters to you all expressing my gratitude.

I ask you today, do you intend to continue to support completion of the project as authorized and directed by the Congress.

You have requested more than $21.6 million for FY 1991. Do you intend to request such sums as are necessary and appropriate to continue and complete construction in FY 1994?

Mr. Underwood. It is our intention to request adequate funding so that the North Loup Division will be completed in FY 1994.

Mrs. Smith. Do you have anything in writing showing support for this policy from the Office of Management and Budget? Will you put it in the record?

Mr. Underwood. We do not have anything in writing from the Office of Management and Budget that indicates they would not support the completion of the North Loup Division.

Mrs. Smith. If policy disputes arise over this project with the Executive Branch, will you notify project sponsors in timely fashion so that Nebraska's leaders will have adequate time to intercede with the President to make sure construction proceeds ahead or on schedule?

Mr. Underwood. We attempt to keep the project sponsors informed. If any significant issues arise related to the North Loup Division, we will be in contact with the delegation and project sponsors in a timely manner.

Mrs. Smith. For the record, please provide a discussion of the status of this project, special problems, the work planned for FY 1990 and FY 1991, what funding will be needed, and whether you have sufficient power to shift sufficient funds to keep this construction moving at top speed.

Mr. Underwood. Work has been completed on Calamus Dam and Reservoir and on the recreational facilities around the reservoir. During fiscal year 1990 work will be completed on Davis Creek Dam and fish and wildlife mitigation measures at Calamus Reservoir, construction will continue on the Fullerton and Elba canals and laterals, and land acquisition will be accomplished for Kent Diversion Dam and canal. Funds available in fiscal year 1990 and the $21.6 million requested for fiscal year 1991 will be sufficient to complete the North Loup Diversion as scheduled in fiscal year 1994. Because of the construction sequence and workload, the work can be completed in an efficient manner with the funding available. Sufficient authority already exists to transfer funds to meet unexpected changes to the schedule.

PRAIRIE BEND PROJECT, NEBRASKA

Mrs. Smith. Please provide for the record a discussion of the status of the Prairie Bend Project, Nebraska. How much has been spent so far on all aspects of this project, from the feasibility study authorization in 1983 to the current date, including both Federal and non-Federal funds.

Mr. Underwood. The Planning Report/Draft Environmental Statement on the Prairie Bend Unit, Pick-Sloan Missouri Basin Program will be filed in March 1990. As of January 30, 1990, $3,635,537 in Federal funds, $220,000 in non-Federal funds, and $20,000 in in-kind services have been expended on this project.

Mrs. Smith. Please include in this discussion the public involvement meetings, summarizing numbers of meetings, numbers of those attending, and categories of persons invited to participate.

Mr. Underwood. The Prairie Bend Feasibility Study had a very comprehensive public involvement program. Reclamation, in cooperation with the Central Platte Natural Resources District conducted this program. The Prairie Bend public involvement meetings included groups organized to provide public input directly for Prairie Bend and also the existing groups organized for the Platte River Management Joint Study. Additional public meetings were held for special interest groups for specific concerns as the need arose.

The formal public involvement was through the Public Values Group and the Technical Consultation Group. The PVG included over 60 individuals representing Federal, state, ano local governmental agencies inside and outside the project area; national, statewide, and local organizations and groups; and chambers of commerce. Many individuals rquested to be kept informed, so all the PVG minutes and other information were mailed to these people. Specific local representation on the PVG included the surrounding natural resources districts; Hall, Buffalo, Dawson, and Gosper County Supervisors; and mayors of all the Platte River Valley cities, towns, and villages in the project area.

Sixteen PVG meetings were held beginning on February 16, 1984, with the last one being held on July 16, 1989. Attendance at these meetings was quite good, with 40 to 70 people in attendance at most meetings.

Mrs. Smith. Were these meetings open to the public? How were these meetings publicized in advance? To what extent were news media utilized to encourage participation in these meetings?

Mr. Underwood. All of the Prairie Bend Public Values Group meetings were open to the public. The news media in the area were informed of each meeting. Information provided the news media included the meeting notice and agenda. Several of the news media requested to be included on the PVG Information List which included all the PVG minutes and all other PVG information. All PVG meetings received media coverage. Grand Island, Lincoln, and Omaha newspapers had news articles of every meeting. Additionally, local radio and televisions reported the meetings and interviewed individuals throughout the Study. Nearly 400 newspaper articles concerning Prairie Bend occurred since the beginning of the Study in 1983. Many of these articles were in papers with very large circulation such as the Grand Island Daily Independent, Omaha World-Herald, and the Lincoln Journal.

Mrs. Smith. Producers in the area are criticizing the Bureau and the project sponsors for failing to address their concerns at these meetings. What is your response to this criticism?

Mr. Underwood. Landowners along the Platte river advised Reclamation at a recent public meeting that they were concerned they would lose their land to the Government for habitat improvement. Immediately upon learning of the producers' concern regarding the wildlife habitat acquisition portion of the Prairie Bend Unit, Reclamation and the U.S. Fish and Wildlife Service issued a joint news release announcing that the wildlife habitat acquisition would be accomplished through a willing-seller approach over a 10-year period. Following the 10-year period, the agencies would evaluate the acquisition program, and before any changes were made, a public involvement program would be initiated to develop those future acquisition processes. Other issues such as loss of tax base were addressed, and a recommendation made to include those lands in the Refuge Revenue Sharing Act so that payment in-lieu of taxes could be made to the affected counties.

Mrs. Smith. What is the Bureau's evaluation as to State and local support for this project?

Mr. Underwood. State and local officials have consistently supported funding for the Prairie Bend investigation. However, there are many different views on the alternatives contained in the Planning Report/Draft Environmental Statement. We will have a much better indication of the local support for the project after comments on the statement are evaluated.

NATIONAL ECONOMIC DEVELOPMENT PLAN

Mrs. Smith. What is the cost/benefit ratio of the National Economic Development plan and of the Project Sponsors Plan?

Mr. Underwood. Using prices established under the Water Resources Council Principles and Guidelines, the benefit/cost ratio for the National Economic Development Plan is 0.38 to 1.0, and for the Sponsors Plan is 0.30 to 1.0.

PRAIRIE BEND PROJECT

Mrs. Smith. Under what conditions would the Secretary of the Interior recommend enactment of legislation authorizing construction of the Prairie Bend Project? Does he recommend such legislation now?

Mr. Underwood. There are several key, unresolved issues on the Prairie Bend Project at the present time. These include lack of agreement as to the preferred plan and on the instream flow amounts needed for the critical habitat of the Platte River. Also, the benefit/cost ratio is well below unity when computed using crop prices directed by Principles and Guidelines and there is no agreement on how the costs would be repaid.

These and other issues that may arise during review of the statement must be resolved before it would be appropriate to recommend that the Secretary support legislation authorizing the project.

SHERMAN RESERVOIR SEEPAGE STUDY, FARWELL UNIT, P-SMBP

Mrs. Smith. How much is included in the budget request for correcting the severe drainage problems in the Middle Loup Division of the Farwell Unit as shown by your Sherman Reservoir Seepage Study? My copy is dated November 30, 1989. Please provide for the record an updated version of this study.

Mr. Underwood. The fiscal year 1991 request does not include funding to correct the drainage problems in the Middle Loup River Valley near Loup City, Nebraska. The Sherman Reservoir Seepage Study dated November 30, 1989, has not been updated. We have refined the estimated subsurface drainage costs at this time; however, we are uncertain as to the costs required to mitigate, or replace, the wetlands drained by this construction.

Mrs. Smith. What is the total cost of correcting this problem? What is your total capability for this situation in fiscal year 1991? What work is planned in FY 1990 and FY 1991? Please provide a proposed funding and construction schedule.

Mr. Underwood. The current estimated cost, excluding wetlands mitigation is $1,250,000. The Bureau is utilizing $120,000 budgeted for FY 1990 for the Farwell Unit to accomplish survey, design, and specifications work. Our capability for FY 1991 is $270,000 to begin this drainage construction. A reasonable schedule would be for construction to be completed in fiscal year 1994.

The President's Budget for the Bureau of Reclamation was based on the Administration's support for the Bureau's priorities. While we could spend an additional $270,000 for the Farwell Unit, any increase above the President's Budget levels for this project would need to be offset by corresponding reductions in other projects or programs so that deficit reduction targets can be met.

Mrs. Smith. Will this money be reimbursable from power revenues or do the water users have to pay it back in regular annual installments directly under the loan program?

Mr. Underwood. The costs related to Sherman Reservoir seepage construction will be charged to the water supply works of the Farwell Unit. Based on preliminary information, it appears that the water users' proposal is to have these costs allocated to the water supply works and repaid in accordance with the existing contract.

FARWELL IRRIGATION DISTRICT

Mrs. Smith. Please provide a discussion of the status of the application of money we have appropriated to correct the severe drainage problems of the Farwell Irrigation District.

Mr. Underwood. In fiscal year 1990, $409,000 is allocated for the District to work on measures to correct some of the severe drainage problems. The fiscal year 1991 request includes $460,000 to continue this work. The District is making good progress in burying laterals and lining of canals to correct these drainage problems.

Mrs. Smith. How much money will it take to correct all the problems as far as can be estimated at this time? How much money has been spent? How much is in this budget for this project? How much more is needed?

Mr. Underwood. The 1982 Water Conservation Study of the Farwell Unit estimated that $15 million would be required to line canals and bury laterals in pipe. This did not include subsurface drainage costs. We do not have a current estimated cost to correct all the problems. Through fiscal year 1989, approximately $3.6 million has been spent constructing subsurface drains and $3.0 million has been spent on lining canals and burying laterals. There is $460,000 budgeted in fiscal year 1991 to continue this work by the Farwell District. The authority remaining under the D&MC contract after fiscal year 1991 is $753,173.

Mrs. Smith. I understand the district will be applying for additional funds under the loan program. What is the Bureau's expectation as to the availability of loan funds? Can these funds be provided within the President's budget? If not, how much additional would be needed?

Mr. Underwood. We understand that the Farwell District may apply for approximately $15 million to complete the high groundwater correction measures through a Rehabilitation and Betterment loan or as an extension of their existing Drainage and Minor Construction agreement. We expect these funds will be difficult to obtain due to budget restraints. The President's budget did not provide for any funds in fiscal year. We would estimate that the District would have the capability to use $255,000 during fiscal year 1991.

The President's Budget for the Bureau of Reclamation was based on the Administration's support for the Bureau's priorities. While we could spend an additional $255,000 for the Farwell District, any increase above the President's Budget levels for this project would need to be offset by corresponding reductions in other projects or programs so that deficit reduction targets can be met.

CEDAR VALLEY PROJECT, LOUP RIVER BASIN STUDY

Mrs. Smith. Please provide a discussion of the Loup River Basin study, with particular focus on the proposed Cedar Valley Project. What is the estimated cost/benefit ratio of this project? What is the Bureau's recommendation as to further study and construction? Has the Bureau surveyed local attitudes toward this project? What are the Bureau's conclusions as the result of such surveys?

Mr. Underwood. The study was undertaken to identify and quantify the water, land, and ecological resource needs and availability, and to develop potential solutions to any problems. Through public involvement and Reclamation District input, two options incorporating off-stream storage reservoirs supplied with Cedar River water and on stream storage on Beaver Creek were analyzed. Benefit/cost ratios calculated using irrigation benefits only were about 0.2;1.

There is a lack of water in the Lower Cedar River during the irrigation season and some areas have groundwater supply problems. A Cedar River/groundwater aquifer interaction model would be required before future water availability estimates can be made.

Two public meetings, one at Spalding and one at Fullerton, were held. Opposition to an onstream reservoir near the town of Spalding, Nebraska, was voiced at both meetings.

It is not likely an irrigation storage reservoir can be justified unless economic conditions change. At this time, Reclamation can not recommend further study of the project.

GROUNDWATER RECHARGE DEMONSTRATION PROGRAM

Mrs. Smith. Please provide a discussion of the Groundwater Recharge Demonstration Program, its status, its total expected costs, and major problems, including the potential for groundwater contamination. Please provide a list of each project in the program and their respective, individual funding and construction schedules.

Mr. Underwood. Public Law 98-434 directed the Secretary of the Interior, through the Bureau of Reclamation, to develop a plan for a minimum of 21 groundwater recharge demonstration projects in the 17 Western States and to construct, operate, and maintain a program at the sites selected.

Phase I, the project selection phase, was completed in December 1987, with a submittal to Congress of a report recommending construction of 21 demonstration projects. Phase II, design, construction, operation, monitoring, and evaluation was initiated in fiscal year 1989 with an appropriation of $3,000,000 to initiate construction on 12 projects. In fiscal year 1990, design and construction activities are expected to be initiated on eight additional projects with the appropriation of $7,323,000. In fiscal year 1991 the budget request of $4,503,000 will permit initiation of the final project and continued construction and operation of the other 20 projects.

Projects are being carried out by local sponsors under general supervision of the Bureau of Reclamation, the Geological Survey, and the Environmental Protection Agency in a cooperative, interagency activity. As required by Public Law 98-434, the Bureau of Reclamation has contracted with the Western States Water Council to perform an analysis of the economic, institutional and legal aspects of groundwater recharge from a state perspective. Phase 1 of that study will be complete by September 1990.

The current total Federal cost estimate for the program is $27,724,000. The total cost estimate is $38,201,000. Thus, the non-Federal share is 27 percent. However, since only preliminary estimates are available on the projects starting in FY 1990, the Federal cost may be as much as $31 million. Public Law 98-434 authorized $20,000,000 for Phase II. Accordingly, as mentioned in our budget documents, legislation would be required to increase the appropriation ceiling in order to complete all 21 projects.

A major aspect of the program is an evaluation of the impacts on water quality, both in the receiving aquifer and in the source supply. The EPA has the responsibility under Public Law 98-434 to report these impacts to Congress. We are working very closely with the EPA and the sponsors to assure that each project includes an extensive groundwater monitoring plan of both groundwater quantity and quality. With this plan in place any potential pollutant can be quickly detected and action taken to prevent contamination of the aquifer. All injected water must not endanger the receiving aquifer. It must either meet all maximum contaminate levels established by EPA under the National Primary Drinking Water Standards, or be of better quality than the receiving aquifer for all maximum contaminate levels. We believe that the design of the recharge experiments will protect the quality of the receiving aquifer while at the same time permit research and demonstration of aquifer recharge in a practical, real-world setting.

The following table provides funding schedules for each of the projects in the groundwater recharge demonstration program.

[The information follows:]

FEDERAL AND NONFEDERAL COSTS

	GRAND TOTAL	FEDERAL TOTAL	NONFEDERAL TOTAL	FY89 FEDERAL	FY89 NONFED	FY90 FEDERAL	FY90 NONFED	FY91 FEDERAL	FY91 NONFED	BALANCE TO COMPLETE FEDERAL	BALANCE TO COMPLETE NONFED
PLAINS-ARIKAREE	720.0	576.0	144.0	17.2	7.9	262.0	61.9	165.6	41.4	131.2	32.8 B
FRENCHMAN	559.4	447.5	111.9	7.6	1.4	115.3	29.4	138.6	34.6	186.0	46.5 B
DENVER BASIN	3092.3	1402.6	1689.7	0.0	0.0	359.1	442.7	278.7	320.1	764.8	926.9 C
SMOKY HILL	976.1	782.0	194.1	0.0	0.0	68.2	17.0	107.5	25.6	606.3	151.5 C
EQUUS BEDS	3557.1	2514.6	1042.5	3.4	0.4	567.6	508.7	474.8	118.7	1468.8	414.7 B
YORK	1911.7	1529.4	382.3	215.9	257.9	1075.8	64.9	70.7	17.7	167.0	41.8 B
WOOD RIVER	1168.5	934.8	233.7	0.0	0.0	109.6	27.4	306.0	76.5	519.2	129.8 C
BLAINE GYPSUM	1558.0	1246.4	311.6	8.0	3.4	441.5	109.0	173.3	43.3	623.6	155.9 B
WOODWARD	981.0	907.5	73.5	0.0	0.0	44.0	11.0	50.0	12.5	813.5	50.0 C
HURON	1175.9	940.8	235.1	2.0	1.0	536.6	133.7	139.7	34.9	262.3	65.5 B
HUECO BOLSON	432.3	301.0	131.3	7.5	4.2	147.8	63.5	89.2	38.9	56.5	24.7 A
HIGH PLAINS	2697.7	2158.2	539.5	0.0	0.0	500.0	125.4	124.8	31.2	1533.4	382.9 C
RILLITO CREEK	2568.4	1390.4	1178.0	6.9	34.0	496.1	802.0	166.3	86.0	721.1	256.0 B
ARCADE	616.3	493.3	123.0	1.1	0.0	212.4	53.2	87.4	21.8	192.4	48.0 B
STOCKTON	1697.5	1358.1	339.4	0.0	0.0	664.6	166.1	262.2	65.5	431.3	107.8 C
S.W. IRRIG DIST	3130.0	2504.0	626.0	0.0	0.0	642.2	160.6	422.4	105.6	1439.4	359.8 C
WASHOE	1124.4	901.0	223.4	0.0	0.0	653.4	161.4	136.7	34.2	110.9	27.8 C
TURNER-HOGELAND	601.0	480.8	120.2	13.2	3.8	209.8	52.0	76.9	19.2	180.9	45.2 B
HERMISTON	2443.6	1954.9	488.7	0.0	0.0	1280.0	320.0	328.5	82.1	346.4	86.6 B
S.E. SALT LAKE COUNTY	3449.6	1622.0	1827.6	0.0	0.0	928.9	1202.0	357.9	198.8	335.2	426.8 C
HIGHLINE WELL FIELD	2307.2	1845.7	461.5	0.0	0.0	436.2	109.1	329.6	82.4	1079.9	270.0 B
Subtotal	36768.0	26291.0	10477.0	282.8	314.0	9751.3	4621.0	4286.8	1491.0	11970.1	4051.0
ECONOMIC STUDY	156.3	156.3	0.0	0.0		66.3		0.0		90.0	
COORDINATION	1276.7	1276.7	0.0	171.5		128.1		216.2		760.9	
Total Program	38201.0	27724.0	10477.0	454.3	314.0	9945.7	4621.0	4503.0	1491.0	12821.0	4051.0

Completion Schedule: A = 1992
B = 1993
C = 1994

SCOTTSBLUFF NATIONAL MONUMENT, GERING IRRIGATION DISTRICT

Mrs. Smith. Please provide a discussion of the drainage problems and funding options facing the National Park Service and the neighboring Gering, Nebraska, Irrigation District with respect to the Scottsbluff, Nebraska, National Monument.

Mr. Lujan. I am informed that Gering Irrigation District, a privately-owned irrigation district that receives North Platte Project water, has a right-of-way through the Scottsbluff National Monument for an irrigation canal. An irrigation drainage wasteway adjacent to the canal has caused serious erosion to the canal such that the canal is in imminent danger of failing. Not only would failure of the canal be costly to the local economy, which depends on the water for irrigation, but it would also send a rush of water across the monument causing unnatural erosion.

Numerous meetings have been held with representatives of the Gering Irrigation District, the National Park Service, the State, and other Federal agencies, including Reclamation, in an effort to solve this problem. The District has proposed realigning the canal, but the National Park Service believes the District should investigate other engineering alternatives and address the problems associated with the disposal of irrigation drainage water.

Because the project and canal are not government-owned, neither Reclamation not the Park Service are in a position to fund the realignment of the canal. A loan under the Small Reclamations Project Act could be considered. Representatives of Reclamation's North Platte Project Office would be more than willing to meet again with representatives of the Gering District to discuss the matter further.

NIOBRARA SCENIC RIVER PROPOSALS AND THE O'NEILL UNIT

Mrs. Smith. With respect to the proposed reformulated O'Neill Unit that would be located on a few miles of the 450-mile-long Niobrara River in my district, it is a fact that four bills pending in the House propose to study or immediately designate at least 76 miles of this river in or near the proposed O'Neill Unit site. The bills include the Senate-passed S 280, HR 761, HR 3823, and HR 1673.

Do these proposals concern the Federal Government because of their possible impact on already long-established Federal investment and interests in the Niobrara River?

Mr. Lujan. We are aware of the proposals in the four Niobrara River bills and are reviewing their potential effect on all resources related to the river.

Mrs. Smith. Please provide for the record an analysis of each of these bills with respect to their potential impact on the Federal Government's interests, investment, and constituents near and on the Niobrara River. Please define precisely what is meant by the term Federal Government "constituents" in this context. Please provide proposed legislative language necessary for each bill to protect existing Federal interests, past, present, and future.

Mr. Lujan. The Department is in the process of reviewing the four bills relating to wild and scenic river status for the Niobrara River. There has been insufficient time to complete the analysis, but we should be done by late March. We will furnish the information you request as soon as it is available.

Mr. **Bevill**. The Chair recognizes Mrs. Boggs.

Mrs. Boggs' Opening Remarks

Mrs. **Boggs**. Thank you so much, Mr. Chairman.

And we welcome you, Mr. Secretary. We especially welcome you, it is nice to have you back where you belong.

Secretary **Lujan**. Thank you.

AMERICA THE BEAUTIFUL

Mrs. **Boggs**. We are also very happy that you are where you are. I am especially interested in ATB, that is "America the Beautiful". I have been enthusiastic about it for a number of years, as you know. I was very pleased to see that your Department has a whole section of its focus for the coming year on America the Beautiful.

BAYOU SAUVAGE WILDLIFE REFUGE

I notice that among the initiatives that you are going to have is ATB. I am sure you are very much aware that we are trying very hard to establish the Bayou Sauvage Refuge in New Orleans. I want to thank you for the work that has been done there, and the cooperation we have received.

We are hopeful that we will be able to settle the problems of the Maxent Canal levees so that we can go forward with all the plans. Do you have any plans within the Department for the wildlife refuge in Bayou Sauvage?

Secretary **Lujan**. Yes. The levees are a concern, and moving in that direction, we are supportive and would like to see it all come to fruition. So, we are very supportive of it.

Mrs. **Boggs**. Thank you very much.

Under the America the Beautiful program, I notice that you will be working with the forests, under the jurisdiction of the National Park Service, the Fish and Wildlife Service, and the Bureau of Land Management, and that you also are supporting the planting of trees.

I was very happy to participate in a little press conference recently where Texaco gave $1 million to the planting of trees in New Orleans and Denver and Houston, where, of course, they have a large number of employees. They are using some of the monies for training of volunteers as well as for the purchase of the trees.

Are you involved? Is the Interior Department involved in that also?

Secretary **Lujan**. Very much so. The tree planting monies are within the Department of Agriculture, $175 million, but the Interior is very much involved in the whole America the Beautiful program. We have two programs, America the Beautiful, which is the White House program, and that is to enhance the opportunities, to make it better; we also have Legacy '99, which is to improve the Interior's infrastructure, for example, to catch up on the backlog that exists in the safety of dams, that is of particular interest to this committee.

Within the Department's infrastructure—the parks, buildings, roads, bridges, all of those things—we have a $2 billion backlog. So, the two together, one says keep going and enhance the resources, and the other, Legacy '99, says catch up with what you have.

So we are very, very pleased with that.

HAZARDOUS MATERIALS

Mrs. BOGGS. Under the Legacy '99 program, could you tell us what is being done to catch-up in the hazardous materials area?

Secretary LUJAN. Well, that is one of the areas. We have $68 million in the budget for that—I wanted to see if we had the breakdown of where these funds are going. But I will send that breakdown to you. But it is just a substantial effort of catching up with that backlog.

[The information follows:]

HAZARDOUS MATERIALS MANAGEMENT

The FY 1991 Legacy '99 request for Hazardous Materials Management is $67.9 million, which is an increase of $23.4 million over the FY 1990 level. Below is a bureau-by-bureau breakdown of the funding.

HAZARDOUS MATERIALS FUNDING

[Dollars in millions]

	1990	1991	Change
Bureau of Land Management	12.5	18.3	+5.8
Bureau of Reclamation	10.9	14.4	+3.5
Geological Survey	.8	.8	0
Bureau of Mines	8.4	0	−8.4
Fish and Wildlife Service	5.6	14.6	+9.0
National Park Service	3.9	14.0	+10.1
Bureau of Indian Affairs	2.1	4.6	+2.5
Office of the Secretary	.3	1.2	+.9
Total	44.5	67.9	23.4

GLOBAL CHANGE RESEARCH

Mrs. BOGGS. Another subcommittee on which I serve, Mr. Secretary, has jurisdiction over both NASA and the National Science Foundation. Both agencies are doing a great deal of work on global change research. Is Interior interacting with these agencies in the research?

Secretary LUJAN. We do. We have $43 million in the budget for that. The biggest part of it is with the U.S. Geological Survey. $28 million out of the total of $43 million is in the USGS. The Bureau of Reclamation specifically has $2.4 million in that effort. The rest is distributed throughout the Department. We are not the major player in global change research. NASA and the National Science Foundation are.

But I will tell you that the chairman of all of the government agencies is Dallas Peck, who is the Director of the USGS, so we are very concerned and very involved.

WETLANDS INITIATIVE

Mrs. **Boggs**. Nothing could interest us in Louisiana more than your wetlands initiative. Of course, it is a very difficult problem that the President has presented to us with no net wetlands loss policy.

Could you expand a bit on what the Department is doing to have a wetlands initiative that will focus on completing the inventory of wetlands?

Secretary **Lujan**. Yes, ma'am. As you know the President has a no-net-loss-of-wetlands policy, and so we work towards that, not only in acquisitions, but with the private sector and in trying to rehabilitate those places that have not responded well.

One, for example, of course, you know in Louisiana we have a particular problem with coastal erosion. But to give you an idea of what we are doing for additional acreage in wetlands the Everglades is probably as good an example as any. The acquisition of 100,000 acres is planned to help put it back in the condition that it was in. Water had been diverted away from half the entire Everglades.

So we are in the process of trying to reverse that now and make an additional 100,000 acres of wetlands. We are doing things like that all over the country.

Mrs. **Boggs**. The Corps of Engineers in the New Orleans District has a fine, comprehensive study of all of the various studies going on about the wetlands. They issue a report on a monthly basis, I believe. I wonder if that is made available to your Department?

Secretary **Lujan**. Yes, it is. We get that, and of course comment on it. We are very interested because that is a big, big problem for us as it is for the entire Louisiana Delegation. We are very cognizant of that.

Mrs. **Boggs**. I do thank you for all of your initiatives and for your stewardship. I thank you, Mr. Chairman.

Secretary **Lujan**. Thank you, Mrs. Boggs.

Mr. **Bevill**. The Chair recognizes Mr. Thomas.

Mr. Thomas' Opening Remarks

Mr. **Thomas**. Thank you, Mr. Chairman.

Mr. Secretary, good to see you again. I would like to go back to page 2 of your statement in the America the Beautiful section, and talk with you a second or two about that. I realize I might get a little bit away from the committee's specific agenda with you.

Regarding the acquisition of new lands, can you tell me what you have in the budget to expand acquisition for national parks, wildlife areas and other public lands? What are your priorities? How high a priority do you put on the need for new acquisitions at this time?

Secretary **Lujan**. The President's Budget includes a total of $250 million in acquisitions. Let me tell you also that last year, we requested $206 million, and prior to that, we requested $19 or $20 million. I am patting Interior a little on the back by giving you those figures. We are placing more emphasis on it.

Out of that $250 million, $160 million goes to Interior and the balance to the Forest Service. Let me see. Here we are. BLM, we have $24 million; Fish and Wildlife, $56 million; National Park Service, $80 million; and the Forest Service, $88.9 million.

And our priorities are the two priorities that the President has, that is, park lands near population areas and acquisition and restoration of wetlands to get as close as we can to the no-net-loss-of-wetlands policy. Those are our two priorities.

WILDLIFE REFUGE

Mr. **Thomas**. Those are policies that I could certainly support. I happen to be looking at, within my own Congressional District, a proposal for a wildlife refuge on the lower floodplain of the Otamaha River, which has a great floodplain that is to some extent unintruded upon. But the process is starting, the conversion within it from the upland hardwoods to pine plantation.

I am a great supporter of the pinewood industry, but I don't think we need to be converting our hardwood bottom lands into production. It is a rather unique system in the range of 30 to 35 acres that could be available. I am working with the industry in our area to see what their reaction to this is going to be.

I point to one problem that I would like to make you aware of, and that is, as I see it, we have industry already located on the border, which could be the river itself, the high bluff side extending eastward. Much of this industry is very concerned about the possibility that if we create a wildlife refuge, then in turn we will come back and try to impose higher standards on them than exist for the State at large.

There have been instances in which this has occurred and has caused considerable controversy. My personal opinion is that I would rather have the refuge with the industry there than to not have the refuge at all.

I just want to point out that this is an area of trouble that I am running into that is related somewhat to what you are doing. I hope we can find a way to locate these rare and unique properties, and that we can take the assurance that it needs, so we don't have the kind of objection that makes a politically impossible situation for a person like me, who wants to see the property committed, but finds himself in an untenable position.

That is one of my concerns at this time, and very possibly I might call on you for your considerable influence and for help from your Department somewhere down the line.

Secretary **Lujan**. I used to be one of you, so I am very sensitive to the kind of problems that can cause. I still am one of you in spirit.

Mr. **Thomas**. We are glad that you have had the baptism by fire. Mr. Secretary, let me move on to a different subject.

WETLANDS

One of my favorite subjects is the wetlands initiative. As I see it, I think we all support the no-net-loss concept. I certainly do. In fact, I think we need to be creating wetlands in addition to saving what we have at this time. I don't think to just stand pat at the current level will take care of our needs for the future.

Secretary **Lujan**. That is a tough goal, anyway, just no net loss.

Mr. **Thomas**. Absolutely. I concur with you, particularly because of the natural phenomenon that is happening in Mrs. Boggs' area. That is why we need to look at re-creation of wetlands in other parts of the country.

As I see it, it is going to be a process of first determining what our inventory of wetlands is and how they fit in our country.

That has to be the baseline data in any truly meaningful solution for the future. The $2 million you have in the budget request to me seems like a very small amount to do what is, to me, and I think should be to anyone, the obvious first step in our policy towards wetlands. That is to have a current inventory that is accurate and that is continually updated. We need to have the right information to work with.

Do you think the $2 million is sufficient and do you think you will have the study results relatively soon? How high is the effort to get this completed?

Secretary **Lujan**. Well, you know, within the resources available, you never have enough, that is the problem. Studies end up costing more. I don't know of a program anywhere that one of us could say, well, that is enough, we don't need anymore. But we work within the constraints of the budget and other priorities that we have.

We move along as far as we can on it. But we are concerned. We need that inventory.

Mr. **Thomas**. I would encourage you to move ahead. I am in a district that will be greatly impacted by whatever we do one way or the other. I want us to play a constructive role in this process.

We have wetlands that can be restored and yet, we don't have the ability to do it at this time or to replace some that are being or might need to be compromised. We don't have the proper things in place, the rules and the regulations, to be able to do this.

With this statement of a no net loss policy, all of a sudden Members of Congress all over this country are being hit with: What is a wetland? I can't do anything. What can I do to mitigate? I am being told that there is no mitigation.

So, the visibility of this issue is very high. We ran the flag up. It is time now for us to get in there and really work to pull all of this together, to develop an inventory, to have a workable mitigation process, and to get the private sector, through the free enterprise system, involved in the expansion of our wetlands.

So I support the initiative, but it has, to many Members like myself who have a great deal of wetlands in our districts, brought the issue to the top and we need some help and coordination on this to go further.

Mr. **Underwood**. One point of clarification. The $2 million is really only for the Bureau of Reclamation for the inventory of 8.5 million acres. We would be working with the Fish and Wildlife Service.

So that is what we are looking at when we look at the $2 million. We are also looking at monies to come up with design criteria to create and restore wetlands, too. We are sensitive to your concerns.

Mr. THOMAS. I understand. The $2 million that I noticed goes to the Bureau of Reclamation, and would not affect the area that I am concerned with. So, there would be other monies available?

Mr. UNDERWOOD. That is correct.

Mr. THOMAS. Thank you, Mr. Secretary. I enjoyed visiting with you.

Secretary LUJAN. Thank you.

Mr. BEVILL. The Chair recognizes Mr. Myers.

Mr. MYERS. Thank you. I have several questions to ask.

GLEN CANYON DAM

You mentioned my trip out to see the Grand Canyon, to fly over it, anyway. Some of these trips that we have the time to make raise questions.

One of them I have is about the Glen Canyon Dam project. I notice in your budget request that you had $20 million for 1990, and $18,942,000 for fiscal year 1991 for the Initial Units O&M account. Is that for the EIS as well as the other environmental studies.

Can you tell me something about the Glen Canyon Project?

Mr. UNDERWOOD. The environmental studies, I think you may be aware that this pertains to the operation of the Glen Canyon Dam, particularly with the flows through the power plant. Hydroelectric power has a lot of benefits from peaking capacities. There are resources downstream in the Glen Canyon National Recreation Area, and also in the Grand Canyon National Park that are influencing the operations, which are impacting those resources.

The studies have to do with recreation, environmental, and ecological resources in those areas. What we are doing this particular year, we are identifying the scope and, going into the next step, to look at alternatives—alternatives we can do without potentially sacrificing the other beneficial uses that would enhance the resources and minimize the impact.

We have $1.5 million for those environmental studies. There has been work going on since 1983 to quantify some of the operations and their impact on the downstream resources.

Mr. MYERS. Is the $1.5 million in this $18.9 million?

Mr. UNDERWOOD. Yes. It is $1.5 million for the environmental studies. You may be looking at some of the other parts dealing with the dam operation itself.

Mr. MYERS. For the EIS and the ongoing environmental studies?

Mr. UNDERWOOD. Yes.

Mr. MYERS. I was told there was some work done by the State. I believe they have done studies.

Mr. UNDERWOOD. There are a lot of players that are participating in this process. There is also the academic and the scientific community. All of them are players and will be involved in the scoping process and in the development of alternatives to minimize these impacts.

Mr. **Myers**. Would you provide for the record how much has been spent by the Bureau?

Mr. **Underwood**. I sure will.

[The information follows:]

Glen Canyon Environmental Studies

Through the end of fiscal year 1989 the Bureau has spent $6.6 million on the Glen Canyon Environmental Studies.

COLORADO RIVER STORAGE ACT

Mr. **Myers**. In section 8 of the Colorado River Storage Project Act, there is authority to use non-reimbursable funds not coming out of power consumers payments for these studies. Can you tell us about that? Have you made adjustments that are necessary so the cost of the studies won't add to the cost of consumers out there?

Mr. **Underwood**. The studies right now, and this is an agreement within the power community that these—at least these initial studies would continue to be funded through those sources. Once you go beyond that, because it could be potentially larger, it would be funded through different sources.

Mr. **Myers**. When I was out there, they were providing, I think, all the power that was required by turning the plant on and off. They would get a call and two minutes later, they were on line. It didn't seem that the water level was down, but that method of operation didn't seem to be presenting much of a problem. I presume they take care of the downstream water requirements as well as providing power?

Mr. **Underwood**. Correct. To give you an idea of the flows, there is a minimum flow, if it is off-peak, down to a couple thousand cubic feet per second. The flow capacity of the generating plant is around 32,000 cubic feet per second, so you can see if you were going all the way from off-peak to on-peak time, that you could potentially have a significant fluctuation in flow.

One thing to remember in the case of Glen Canyon generating plant is that the water is not determined by the power needs, but the obligations to the downstream States and Mexico. So what you are doing is looking through the deliveries that are needed for those commitments and arranging them on a daily and monthly basis.

This is when the power part comes in. You would give that given amount of water to meet the deliveries and try to optimize the power generations.

FARMERS CONCERNS

Mr. **Myers**. I have other questions to provide for the record. I do have one other observation. I met last weekend with a group of cranberry growers concerning wetlands. I don't know much about growing cranberries, but I was somewhat shocked to hear their story. They are fourth and fifth generation cranberry growers growing cranberries in bogs or marshes.

Yet, to hear the story, it is new people from Fish and Wildlife, who wouldn't know a cranberry from a blueberry, that are calling the growers in and telling them how to use the bogs. I don't know what the answer to it is, but at least as they related the story to me, most of the problem was coming from Fish and Wildlife with unrealistic people moving into the jobs.

Secretary LUJAN. They need to sit down with us and work it out.

Mr. MYERS. They say they have tried. Some of them say they don't know how much longer they will be able to stay in the business, even though they are the fifth generation of growers.

Why does Fish and Wildlife want to come in and change this? What is the purpose of their actions?

Secretary LUJAN. The purpose is for fish and wildlife, as they migrate from one place to the other. There are reasons for it, but you know, there are compatible uses. I am one of those that doesn't know a cranberry from a blueberry.

Mr. MYERS. You can sure tell the difference in taste.

Secretary LUJAN. One is blue, I guess.

Mr. UNDERWOOD. They can coexist. The same thing with the groundwater recharge, you can potentially use it to enhance water development and satisfy some of the wildlife and fish interest as well. So, they can coexist. It is a matter of being responsible.

Mr. MYERS. Well, Purdue University tells me that growing in a wetland will help use the nutrients that come off the ground as non-point source pollution and having companies in there will help clean the water up.

Mr. UNDERWOOD. That is a good point. We have a place in North Dakota where we are doing an experiment, a 5,000-acre test plot to come up with the best management practice. There is an artificially-created wetlands there. One of the concerns about the return flows going into the James River is the nutrient load. So, we are running the flows through this wetlands. It is stripping out the nutrients so it does not impact on the streams.

Mr. MYERS. I am a farmer, and I resent some person coming in who says he is an environmentalist criticizing me on the environment. I was protecting the environment before they were born. They are self-ordained, of course. So, it always raises my ire, those who tell me as a farmer how I can protect the ecology and environment.

Secretary LUJAN. Do you raise cranberries?

Mr. MYERS. No, we raise hell. They are raised in just a few States. New Jersey raises cranberries; Massachusetts, of course; and Wisconsin and Oregon and British Columbia. I spoke at their convention last week, and I am an expert now. But that is the way we learn, too.

Well, this is the first experience for two of you, Mr. Sayre and Mr. Underwood. Manny is an old pro here. So, thank you for appearing here today.

Thank you. I have some other questions to provide for the record.

[The information follows:]

QUESTIONS SUBMITTED BY THE HONORABLE JOHN MYERS

GLEN CANYON DAM

Mr. Myers. On pages 471-472 of the Bureau's budget justification for fiscal 1991 the initial unit line shows $20,000,000 for fiscal 1990 and $19,000,000 for fiscal 1991. Is this where the Bureau has programmed funding for both the Glen Canyon Dam EIS and the ongoing Glen Canyon Environmental Studies? If not, where can this funding be found in the justification?

Mr. Underwood. Yes, the Glen Canyon Environmental Impact Statement and the ongoing Glen Canyon Environmental Studies are being financed from project revenues under the Initial Units - CRSP in the Operation and Maintenance account.

Mr. Myers. What amount is requested in the fiscal 1991 budget for the Glen Canyon Dam EIS? Does this amount include funding for the ongoing GCES? If not, what amount is requested for the GCES?

Mr. Underwood. The fiscal year 1991 program for the Glen Canyon Dam EIS is $1,500,000 and will be financed from project revenues. The GCES is essentially complete. Any cost in fiscal year 1991 for extracting information from the GCES data necessary for use in preparing the Glen Canyon Dam EIS will be financed under the EIS.

Mr. Myers. What is the total estimated cost of both the Glen Canyon Dam EIS and the GCES? What amount has the Bureau spent on both these efforts through fiscal 1989?

Mr. Underwood. It is currently estimated that the Glen Canyon Environmental Studies will cost about $7.4 million of which $6.6 million was expended as of September 30, 1989. The remaining $0.8 million is scheduled for expenditure in fiscal year 1990. A total estimated cost for the Glen Canyon Dam EIS will not be available until after we have completed the scoping phase of the EIS to determine what additional data is required for development of alternatives. However, a preliminary estimate of the cost of the EIS is between $5.0 and $7.0 million.

Mr. Myers. Section 8 of the Colorado River Storage Project Act specifically provides authority for nonreimbursable funding for environmental studies. Does the Bureau plan to make the accounting and program adjustments necessary to make these costs nonreimbursable (instead of being totally borne by power consumers)? Please explain.

Mr. Underwood. Section 8 of the Act provides for investigations, construction, and operation and maintenance of specific recreation and fish and wildlife facilities. Expenses associated with the Glen Canyon Dam EIS and Glen Canyon Environmental Statement were undertaken as an operational requirement of facilities constructed under Section 5 of the act. As such, costs are allocated to both reimbursable and nonreimbursable purposes consistent with project investment allocations.

ENDANGERED FISHERY INVESTIGATIONS

Mr. Myers. The Bureau budget request also includes $1.5 million for endangered fishery investigations at CRSP facilities. Does not the Section 8 nonreimbursable authority apply to these investigations? Please explain.

Mr. Underwood. The endangered fish program was initiated as an operational need associated with facilities constructed under Section 5 of the Act and are allocated to project purposes based upon the project investment allocation.

SAFETY MODIFICATIONS ON BUREAU OF INDIAN AFFAIRS DAMS

Mr. Myers. Please explain the rationale for funding safety modifications on Bureau of Indian Affairs dams in Reclamation's budget and how this work has been funded previously.

Mr. Underwood. Reclamation has been assisting the Bureau of Indian Affairs with its dam safety program since 1978. All of that work was funded by the BIA through reimbursable agreements.

In FY 1989, due to the severity of conditions at Coolidge Dam, a BIA dam in Arizona, the Secretary directed that Reclamation take control over safety modifications to that dam. This Committee responded to the situation by including $1.4 million in Reclamation's FY 1990 appropriations to expedite construction on Coolidge Dam.

In its September 1989 report, the Department's Office of Inspector General concluded that BIA had not demonstrated an adequate commitment to its dam safety program and had made little progress in correcting documented deficiencies. Despite the fact that 23 of BIA's dams are currently among the top 50 dams on the Department's dam safety priority list, the only actual safety modifications work underway on any BIA dam is the work being done by Reclamation at Coolidge Dam. The Department's proposal that funding for safety modifications on BIA dams be included in Reclamation's budget in FY 1991 is necessary to facilitate timely corrective actions on these dams, and to more directly utilize Reclamation's engineering and construction management expertise. BIA and tribes would continue to be involved in decisions regarding priorities and the corrective actions to be taken.

Mr. Myers. What portion of the fiscal 1991 request for safety of dams work is attributable to the transfer of the BIA dams to Reclamation's budget?

Mr. Underwood. In the total request for dam safety purposes, $9.1 million is to be allocated to BIA dams.

IRRIGATION DRAINAGE PROGRAM

Mr. Myers. Will the Bureau's role in the Department's Irrigation Drainage Program be limited to work on Bureau projects?

Mr. Underwood. The Bureau of Reclamation's role thus far has been to provide project information and is a member of the study team in the first three phases. Reclamation's role changes in phases IV and V. Phase IV will cover remediation planning and Phase V will be implementation of the planned remediation directed at both Reclamation projects and adjacent wetlands and wildlife refuges. It is currently anticipated that Reclamation will have the lead in phases IV and V with the support of the Geological Survey and Fish and Wildlife Service, under the direction of the Manager of the National Irrigation Water Quality Program in the Office of the Secretary.

WETLANDS INVENTORY

Mr. Myers. What guidelines will the Bureau use to determine what constitutes a wetland for the purposes of completing a wetlands inventory?

Mr. Underwood. The Bureau of Reclamation is working with the U.S. Fish and Wildlife Service to undertake a wetlands inventory on the approximately 8.5 million acres of land owned by the Bureau of Reclamation. This inventory will be carried out under the National Wetlands Inventory which uses the "Classification of Wetlands and Deepwater Habitats of the United States."

KESTERSON RESERVOIR

Mr. Myers. What is the status of the cleanup activities at the Kesterson Reservoir?

Mr. Underwood. On November 16, 1988, we successfully completed the filling of ephemeral pools at Kesterson Reservoir. The filling of these ephemeral pools appears to have eliminated significant adverse impacts to wildlife at the Reservoir.

The final cleanup plan was approved by the State Water Resources Control Board on September 21, 1989. The approval stipulated that an annual site management plan be submitted for approval to the California Regional Water Quality Control Board. This plan is composed of three elements; active site management to minimize potential exposure of wildlife to selenium remaining at the Reservoir; continued monitoring to verify lack of impacts to wildlife or groundwater; and continued research into effective means to safely manage and dissipate the remaining selenium inventory at the Reservoir. We are currently operating under this approved cleanup plan. The 1990 site management plan is in preparation for submittal to the Regional Board.

ANIMAS-LaPLATA PROJECT

Mr. Myers. Please update the Subcommittee on the progress and fiscal 1991 budget request of the Animas-La Plata Project.

Mr. Underwood. Repayment contracts have been executed with all non-Federal entities, with the exception of the contracts with the Indian tribes, which are anticipated to be executed this spring. San Juan County, which is a member of the San Juan Water Commission, a contractor for project water, recently voted to rescind their resolution approving the repayment contract until a vote of the residents is held. They will hold that election in April. Irrigation water petitions and Reclamation Reform Act certifications are completed for approximately 76 percent of the project lands. A question of endangered species in the San Juan River has necessitated the issuance of a new biological opinion on the project by the Fish and Wildlife Service, which is anticipated in May. Other prerequisites necessary to start construction on the Animas-LaPlata project are essentially complete.

In fiscal year 1991 a total of $13,415,000 in Federal funds has been requested. A total of $2,342,000 in non-Federal funds are also anticipated, for a total of $15,757,000. The program includes completion of all land acquisition for the Ridges Basin Dam and Reservoir and adjacent lands, continuation of utility relocations as well as design data collection and investigation for the major features of the project. Cultural resource mitigation activities will also continue.

Mr. Myers. Will the current schedule for the Animas-LaPlata Project fulfill the water delivery terms included in the Colorado Ute Water Rights Settlement Act (P.L. 100-585)?

Mr. Underwood. The Colorado Ute Water Rights Settlement Act states that the Secretary is authorized to supply water to the Tribes from the Animas-LaPlata Project in accordance with the Colorado Ute Indian Water Rights Final Settlement Agreement dated December 10, 1986. The current schedule for the project will fulfill the requirements of that Agreement.

CRSP REVENUE DEFICIENCY

Mr. Myers. 1990 is projected to be the third dry year in a row for the Colorado River Basin. We are advised by the Western Area Power Administration that expected inflow into Lake Powell is about 59 percent of average. This low inflow at other CRSP facilities could result in a $25 million CRSP deficit for 1990, due primarily to increased energy purchases. Given this projected revenue deficit, will there be adequate revenues from power sales to fund the operation and maintenance program provided in this budget?

Mr. Underwood. We are projecting a shortage of about $10 million to accomplish planned operation and maintenance work included in this budget. We have already begun a cooperative effort with Western Area Power Administration on consolidated fund utilization projections.

Mr. Myers. What steps do you suggest this committee take to assure that an adequate maintenance program is funded in order to avoid serious problems that could arise from not properly maintaining this important project?

Mr. Underwood. We are looking very carefully at this situation and will keep the Committee advised of any steps necessary to assure that an adequate maintenance program is funded.

Mr. BEVILL. Mrs. Boggs?

WOMEN AND MINORITIES

Mrs. BOGGS. I have some questions that I would like to present for the record, too, but I wouldn't want to disappoint Manny by not asking this one out loud. Could you please bring us up to date on the Department's efforts to hire and promote qualified women and minorities in management positions?

Secretary LUJAN. That is one of our four initiatives. I have to tell you a story of how well it is working. A lot of times, you don't know how a program is working, but when you go to find out you are pleasantly surprised. Last year, I spoke to a women's group, and I was asked, "How many female park superintendents do you have?"

I didn't know, and I said, "I don't know exactly how many we have, but I will check that out, and you ask me the same question next year." Well, they remembered, and they wrote me a letter, and so I checked back with the Park Service and we had had 25 the year before, and now we have 39. So that is a 50 percent increase. It is a big effort within the Department.

Mrs. BOGGS. We have some in Louisiana. What kind of representation do women and minorities have in the senior levels of the Department's management?

Secretary LUJAN. Very well. Let me just tell you that in my own office, for example, of the seven Assistants to the Secretary positions, four are women, of which three are minorities. Of the Department's six Assistant Secretaries, two are women and two are minority males. Those percentages don't hold all through, but it is a big effort in the Department.

Mr. ITTEILAG. Mrs. Boggs, we obviously prepare for this question annually, and I have some interesting statistics. I know people say you can do a lot with statistics, but this is pretty straightforward. During the period of the Secretary's tenure, the number of females in what we call the senior level positions, grade 13 and higher positions, which are all professional, technical or management positions, have increased by 131, and that is about a 13-percent increase overall.

So that is a rather remarkable performance, I think, in my experience. We will put some additional detail like this in the record for you. But that is, I think a very signficant accompishment.

[The information follows:]

NEW INITIATIVES

Mrs. Boggs. Thank you very much. Because you have done so well, you obviously have some new initiatives in your budget request which will affect the Department's efforts in this regard. Do you?

Mr. Itteilag. That is right, Mrs. Boggs. The Secretary, right from the start, has directed a specific initiative. We have required each of the Bureaus to have an initiative and to include money in the budget. It is $4.3 million, and it is spread among all the Bureaus and includes $900,000 in the Bureau of Reclamation.

Secretary Lujan. I also want to tell you, Mrs. Boggs, that it is a top priority of the President himself. At Cabinet meetings, often he asks us how we are doing and chastises us if we are not performing. So it is a very high priority on his agenda.

Mrs. Boggs. Thank you very much. I will submit my other question for the record.

[The information follows:]

QUESTIONS SUBMITTED BY THE HONORABLE LINDY BOGGS

WETLANDS

Mrs. Boggs. What role does the Department have in developing and implementing the President's "no net loss" wetlands policy?

Mr. Lujan. At the President's direction, the Domestic Policy Council (DPC) has created a task force on wetlands, which is in the process of examining how best to implement the President's goal of no net loss. The Department of the Interior is a key member of the task force. Furthermore, in order to meet the President's goal and to assist in meeting the Department's own mandates in managing water resources and preserving wetlands, a working group on wetlands policy has been formed within Interior to assist the Department's representative to the DPC task force.

As stewards of approximately 500 million acres of federally owned land--parks, wildlife refuges, public lands and their natural resources--Interior has a major role to play in the management of wetlands. Interior is responsible for wetland protection, rehabilitation, restoration, and research. Interior is abound with natural resource technical expertise that is particularly helpful for joint efforts with state and local governments and the private sector. As further described in the following response, several Interior bureaus offer expertise in ecology, engineering, biology, hydrology, mapping and soil science.

Mrs. Boggs. The Administration's budget indicates the Department has a substantial increase in its wetlands' budget to $155 million. Please submit an analysis of what those funds are to be used for and indicate whether the funding is for new programs or continuation of existing programs.

Mr. Lujan. The 1991 Departmental budget request includes $153.8 million for wetlands, more than a 25 percent increase over 1990 funding, contributing to the President's national goal of "no net loss" of wetlands. The following table summarizes the Department's wetlands initiative and is followed by brief descriptions of each bureau's activities.

[The information follows:]

Wetlands

	($ in millions) 1990	($ in millions) 1991	
FWS, Operations	24.1	35.9	
Land Acquisition and NAWCA*, current accounts	56.0	67.2	/1
Subtotal	80.1	103.1	
Other Bureaus			
BLM	0.2	0.6	
OSM	0.1	0.1	
BOR	6.6	5.2	
GS	2.0	2.9	
BOM	1.0	0.9	
NPS	0.1	0.4	
Subtotal, Other Bureaus	10.0	10.1	
Land Acquisition, MBCA**	30.2	30.6	
NAWCA -- Permanent	0.0	10.0	1/
FWS Construction	1.5	0	
TOTAL, Wetlands	$121.8	$153.8	

*North American Wetlands Conservation Act

**Migratory Bird Conservation Act

1/Note: This amount represents projects devoted primarily to wetlands. Of the total $250.0 million land acquisition program, 60 percent of the projects have at least some wetland or riparian value. Also note that a determination will be made for the land acquisition portion of the $25.0 million NAWCA funding.

WETLANDS ACTIVITIES INDIVIDUAL BUREAUS

The FWS wetlands initiative for Resource Management totals $35.9 million, an $11.8 million increase over 1990. The $11.8 million increase over 1990 is comprised of the following: $2 million for enhanced capability in implementation of agricultural wetlands restoration under the 1985 Food Security Act; $500 thousand for identification of potential contaminant problems in important estuarine wetlands; $2 million for the National Wetlands Inventory for an update of the "Status of Trends of Wetlands in the United State"; $2.8 million for purchase or lease of water rights and water delivery to refuge lands; $2.4 million for implementation of private partnerships to allow the Service to conduct projects for the improvement of Service wetlands in cooperation with private and non-Federal entities; $500 thousand to initiate improvement of waterfowl habitat and wetland protection on and off Service lands; $1.1 million to provide joint venture support as well as to support restoration of wetlands at Chase Lake, ND, Lake Thompson, SD, and the Central Valley of California; $400 thousand to provide wetland and migratory bird data bases in support of regional habitat joint ventures; and $225 thousand for research on Prairie Pothole wetlands. The remainder of the Service's budget, $24.1 million, is for the continuation of existing programs.

Another large initiative is the request for $25 million to fund the recently enacted North American Wetlands Conservation Act (NAWCA), which through the North American Waterfowl Management Plan, encourages partnerships among public agencies and other interests for the protection, enhancement, restoration, and management of wetland ecosystems and other habitats for migratory birds; as well as the maintenance of current or improved populations of migratory birds in accordance with the Tripartite Agreement among the United States, Canada, and Mexico. These goals will be implemented with the help of non-Federal matching of Federal contributions, which will be used to obtain real property, including water rights, conservation easements, and the restoration, management, and enhancement of habitat in the United States and Canada.

In addition $52.2 million in Land and Water Conservation Fund acquisitions is designated for the Bureau of Land Management, Fish and Wildlife Service, and National Park Service, for projects that are primarily wetlands. Furthermore, of the total $250.0 million for land acquisition, 60 percent of the projects contain at least some wetland or riparian values. Another $30.6 million will continue to be used for wetlands acquisition from the Migratory Bird Conservation Fund.

The Department is also requesting $50.7 million for other wetlands work contributing to the "no net loss" national goal involving several bureaus: NPS, BLM, OSM, BOR, GS, and BOM. Taken together, the Department's budget total of $153.8 million provides for implementation of a fully integrated wetlands program of protection; restoration and enhancement; and research, information, and education. This program also includes coordination and cooperation with other Federal agencies such as EPA, the Army Corps of Engineers, and USDA, as well as State and private entities.

The Bureau of Land Management will use $0.6 million for wetlands restoration, including coordination within the North American Waterfowl Management plan, with primary focus on the prairie pothole and Alaska joint venture areas. BLM will also inventory one to two million acres of wetlands, which includes a challenge grant cost share inventory venture with the private sector and an agreement on the National Wetlands Inventory mapping activities with the Fish and Wildlife Service in Alaska.

The Office of Surface Mining encourages experimental practices as a means of demonstrating the effectiveness and economic feasibility of new mining and reclamation methods For example, one such practice in Indiana successfully demonstrated that a coal waste slurry area can be reclaimed as a fully functioning wetland wildlife habitat.

The $5.2 million requested for the Bureau of Reclamation includes $2.0 million for a wetlands development initiative that will inventory and examine wetland restoration potential on Reclamation lands. Reclamation will identify and provide water supply alternatives for wetlands and participate with other agencies to determine the effects of herbicides and other pollutants on wetlands. These efforts are in addition to ongoing activities at wetland areas such as Suisun Marsh, California and Brantley Dam and Reservoir, New Mexico.

The Geological Survey will use its $2.9 million in the research and information areas, including the continuation of the Louisiana Wetlands Loss Study; the initiation of wetlands baseline data activities in the Great Lakes region and Florida; and also begin a study of the natural geo-chemical processes involved in the creation and destruction of wetlands.

The Bureau of Mines will continue research on the mitigation and control of mine drainage and liquid wastes, including new wetland technology for the protection of wildlife and habitat.

The National Park Service funding will be used for the development of a comprehensive program of wetland area inventory and classification, onsite evaluation, monitoring, mitigation, and management. The $0.4 million provided in 1991 will allow the Service to begin training personnel and to begin initial activities.

Mrs. Boggs. How will the recent Memorandum of Agreement on Section 404 permits affect the Department's activities? Will it provide any additional role for the Fish and Wildlife Service?

Mr. Lujan. The recent Memorandum of Agreement (MOA) between the Environmental Protection Agency and the Department of the Army establishes joint guidance on determining the type and level of mitigation necessary to comply with the Clean Water Act section 404(b)(1) Guidelines. The Fish and Wildlife Service (Service) represents the Department of the Interior in evaluating the impacts of proposed permit actions on fish and wildlife, developing appropriate mitigation measures, and providing comments and recommendations to the Army Corps of Engineers, in the section 404 permitting authority. The Service performs this role in accordance with its longstanding

DEPARTMENT OF THE INTERIOR
TOTAL EMPLOYMENT
(as of December 31, 1989)

GRADE	TOTAL EMPLOYMENT	TOTAL % MALE	TOTAL % FEMALE	WHITE % MALE	WHITE % FEMALE	TOTAL % MINORITY MALE	TOTAL % MINORITY FEMALE	BLACK % MALE	BLACK % FEMALE	HISPANIC % MALE	HISPANIC % FEMALE	ASIAN AM/ PACIFIC ISLAND % MALE	ASIAN AM/ PACIFIC ISLAND % FEMALE	AM INDIAN/ ALASKAN NATIVE % MALE	AM INDIAN/ ALASKAN NATIVE % FEMALE
GS 13-15															
Dec-89	3929	84.6%	15.4%	78.1%	12.5%	6.6%	2.9%	1.9%	1.5%	1.0%	0.3%	2.1%	0.2%	1.6%	0.8%
Dec-88	3831	85.8%	14.2%	78.8%	11.5%	7.0%	2.7%	2.1%	1.5%	1.0%	0.2%	2.2%	0.2%	1.7%	0.8%
DIFFERENCE	+98	-1.1%	+1.1%	-0.7%	+1.0%	-0.4%	+0.2%	-0.2%	+0.0%	+0.0%	+0.1%	-0.1%	+0.0%	-0.2%	+0.0%
GM 13-15															
Dec-89	5080	88.6%	11.4%	78.6%	9.1%	10.0%	2.2%	1.9%	0.7%	1.4%	0.3%	0.9%	0.2%	5.8%	1.0%
Dec-88	4963	89.8%	10.2%	79.8%	8.1%	10.0%	2.1%	2.0%	0.7%	1.2%	0.2%	0.9%	0.2%	5.9%	0.9%
DIFFERENCE	+117	-1.2%	+1.2%	-1.2%	+1.0%	+0.1%	+0.2%	+0.0%	+0.1%	+0.1%	+0.0%	+0.0%	+0.0%	+0.0%	+0.1%
SES															
Dec-89	283	89.4%	10.6%	80.2%	8.5%	9.2%	2.1%	2.5%	0.7%	1.1%	1.1%	0.0%	0.0%	5.7%	0.4%
Dec-88	280	88.9%	11.1%	80.4%	9.6%	8.6%	1.4%	2.1%	0.7%	0.7%	0.4%	0.0%	0.0%	5.7%	0.4%
DIFFERENCE	+3	+0.5%	-0.5%	-0.1%	-1.2%	+0.6%	+0.7%	+0.3%	+0.0%	+0.3%	+0.7%	+0.0%	+0.0%	-0.1%	+0.0%

DEPARTMENT OF THE INTERIOR
TOTAL EMPLOYMENT
(as of December 31, 1989)

GRADE	TOTAL EMPLOYMENT	TOTAL		WHITE		TOTAL MINORITY		BLACK		HISPANIC		ASIAN AM/ PACIFIC ISLAND		AM INDIAN/ ALASKAN NATIVE	
		MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
GS 13-15															
Dec-89	3929	3325	604	3067	492	258	112	76	60	39	12	82	8	61	32
Dec-88	3831	3286	545	3019	442	267	103	80	57	37	7	83	7	67	32
DIFFERENCE	+98	+39	+59	+48	+50	- 9	+9	- 4	+3	+2	+5	- 1	+1	- 6	+0
GM 13-15															
Dec-89	5080	4502	578	3992	464	510	114	99	38	69	14	46	10	296	52
Dec-88	4963	4457	506	3962	404	495	102	98	34	61	12	45	9	291	47
DIFFERENCE	+117	+45	+72	+30	+60	+15	+12	+1	+4	+8	+2	+1	+1	+5	+5
SES															
Dec-89	283	253	30	227	24	26	6	7	2	3	3	0	0	16	1
Dec-88	280	249	31	225	27	24	4	6	2	2	1	0	0	16	1
DIFFERENCE	+3	+4	- 1	+2	- 3	+2	+2	+1	+0	+1	+2	+0	+0	+0	+0

mitigation policy and guidelines for the review of proposals affecting navigable waters.

The MOA does not establish new policy or procedure; rather, it pulls together and clarifies individual decisions made by the two agencies in recent years regarding interpretation of the 404(b)(1) Guidelines. The guidance provided by the MOA regarding the mitigation goal for wetlands, determining the level of mitigation based upon the impact to wetland functions, and mitigation sequencing is consistent with existing Service policy and guidance. The MOA will thus have no effect on the Department's section 404 permit review activities, other than to complement existing policies and guidelines.

While the MOA does not provide an additional role for the Fish and Wildlife Service, it does emphasize the importance of the existing resource agency role of identifying the impacts of proposed permit actions on wetland functions and values. The Service will continue to participate actively in the section 404 regulatory program in an evaluation and advisory capacity.

The MOA also discusses the need to monitor compliance with permit conditions imposed to mitigate project impacts. Permit monitoring is needed to ensure that mitigation measures are implemented correctly. The Service recognizes that this area presents an opportunity to improve wetlands protection through the regulatory program.

Mrs. Boggs. I understand the Department expressed some concerns about the MOA as originally proposed. What was the nature of those concerns and how were they resolved?

Mr. Lujan. The Department was interested in the MOA for a number of reasons. First, as noted in our answer to the previous question, the Fish and Wildlife Service has an important role in making recommendations to the Corps of Engineers as part of the Section 404 process. In addition, the Department has other bureaus who are involved in the 404 process as applicants. These bureaus need to be cognizant of the Section 404 process to ensure compliance. Our concerns included the desire to assure that the Department's understanding of terms used the MOA was the same as the authors of that document intended. Where existing concepts were used in an unfamiliar manner, the Department sought clarification. Where new terms were introduced, the Department asked for assistance in interpreting those terms in a manner consistent with the already existing regulatory authority of the 404 program.

Mrs. Boggs. The Department was involved in developing the Interagency Wetlands Manual that was issued in January of last year. After a year's experience with the Manual, are you in a position to draw any conclusions about it?

Mr. Lujan. As you note, the Federal manual for Identifying and Delineating Jurisdictional Wetlands was adopted in January 1989 by four Federal agencies, including the Fish and Wildlife Service (FWS). I understand that a significant benefit of the Manual is that it provides a single, consistent and scientifically-based set of technical procedures for Federal agencies to use in delineating wetlands under their jurisdictions. FWS informs me that few concerns have been raised about the substantive content of the Manual, but that some misunderstandings have arisen because of the erroneous belief that the manual changed previous definitions of wetlands. An interagency group plans to meet later this year to review comments received on the Manual and decide how it needs to be clarified or changed.

LOUISIANA WETLANDS

Mrs. Boggs. Two of the Department's agencies, the Fish and Wildlife Service and the Geological Survey have been actively involved in efforts to understand and address problems in Louisiana's coastal wetlands. Would you please describe these efforts?

Mr. Lujan. The Louisiana wetlands are undergoing rapid disintegration at a rate of over 100 acres a day, which affects the environment and the economy. The main factors thought to be responsible for wetlands loss include high rates of land subsidence, reductions in fresh water runoff and fine sediment dispersal from the Mississippi River, construction of an extensive network of canals for oil and gas development, and salt water intrusion into fresh water marshes.

Work will continue during FY 1990 on investigations to examine the biological, geological and physical processes that contribute to wetlands loss in the delta plain of Louisiana. The tasks are being carried out in close coordination with the appropriate Federal and State agencies. Specifically, during FY 1990, intensive field work on critical land loss processes will be conducted. These studies will focus on the sediment starved Terrebonne basin.

In FY 1991, efforts will focus on the investigation of the aggrading Atchafalaya basin and Geographic Information System development.

Mrs. Boggs. What funding is included in the Department's budget to continue those efforts?

Mr. Lujan. In FY 1990, The Fish and Wildlife Service was provided $1.8 million; the Geological Survey was provided $2.0 million. The request for FY 1991 includes $1.6 million in the Fish and Wildlife Service and $1.0 million in the Geological Survey.

BAYOU SAUVAGE NATIONAL WILDLIFE REFUGE

Mrs. Boggs. For the record, please provide a status report on the Bayou Sauvage National Wildlife Refuge? Is the Corps of Engineers providing adequate cooperation with the Service in efforts to repair the Maxent Canal Levee with funds provided in last year's Interior Appropriations bill?

Mr. Lujan. I'm told that a meeting between the Fish and Wildlife Service and the U.S. Army Corps of Engineers was held on February 16, 1990. The Corps is currently reviewing detailed engineering design plans and has advised the Service that the levee repairs can be accomplished within the $3,750,000 appropriation. A memorandum of agreement which provides for the Corps to contract for and administer the repair contract should be completed in the next few weeks. The Corps has been very cooperative with the Service in efforts to accomplish the levee repairs.

WOMEN AND MINORITIES

Mrs. Boggs. Would you please bring us up-to-date on the Department's efforts to hire and promote qualified women and minorities in management positions? What kind of representation do women and minorities have in the senior levels of the Department's management? What about the mid-level positions? How will any new initiatives in your budget request affect the Department's efforts in this regard?

Mr. Lujan. Under the umbrella of the Secretary's Initiative for Women, Minorities and Persons with Disabilities, the Department made gains in several target areas in FY 1989:

> Women accounted for 7 of 10 employees gained in FY 1989, and made up 35 percent of the permanent work force at the end of the fiscal year.
>
> Minority personnel made up 25.8 percent of the Department's permanent workforce compared to 18.4 percent of the civilian workforce at large. The numbers and percentage of minority men and women in grades 13-15 and the SES increased slightly in FY 1989.
>
> The Department met its goal of 1 percent for those with targeted severe disabilities and the percentage of those persons overall who reported disabilities rose to 5.1 percent in FY 1989.

Still I'd like to see us do even better in each of these areas and have made the increase of opportunities for women, minorities, and persons with disabilities one of my chief Secretarial Initiatives. Funding for bureau activities to support this initiative is better than doubled in the FY 1991 Department request. The following table shows the proposed funding increase for bureau-specific programs to increase opportunities for women and minorities. I believe this reflects a significant commitment to enhancing our efforts in this area.

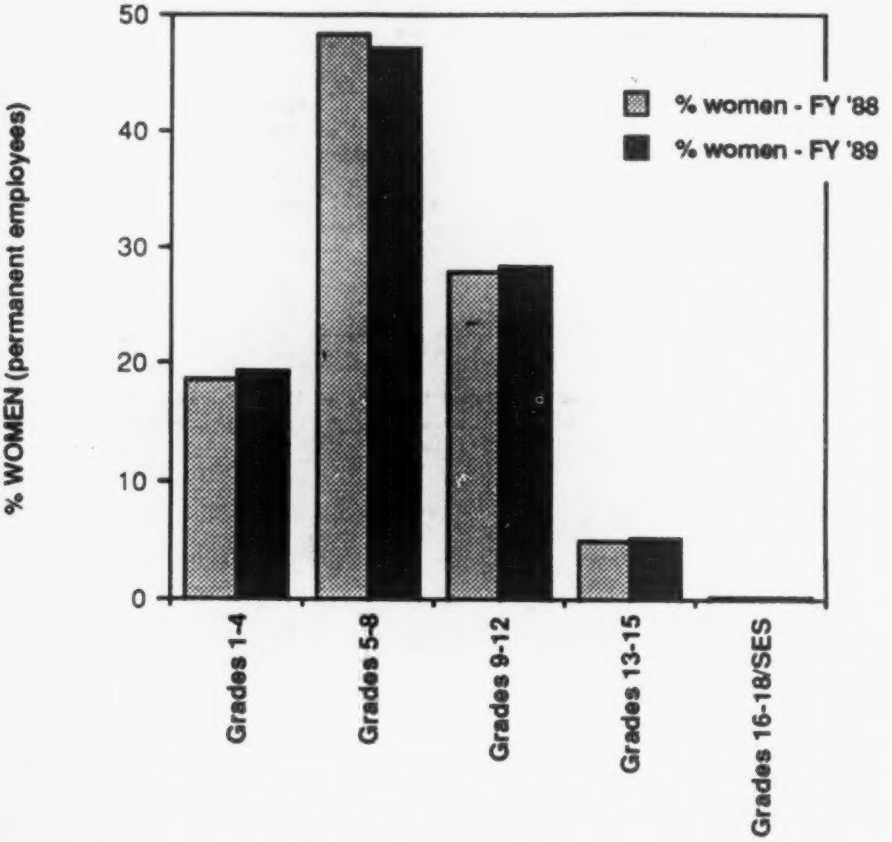
[The information follows:]

Women and Minorities Funding
($ in millions)

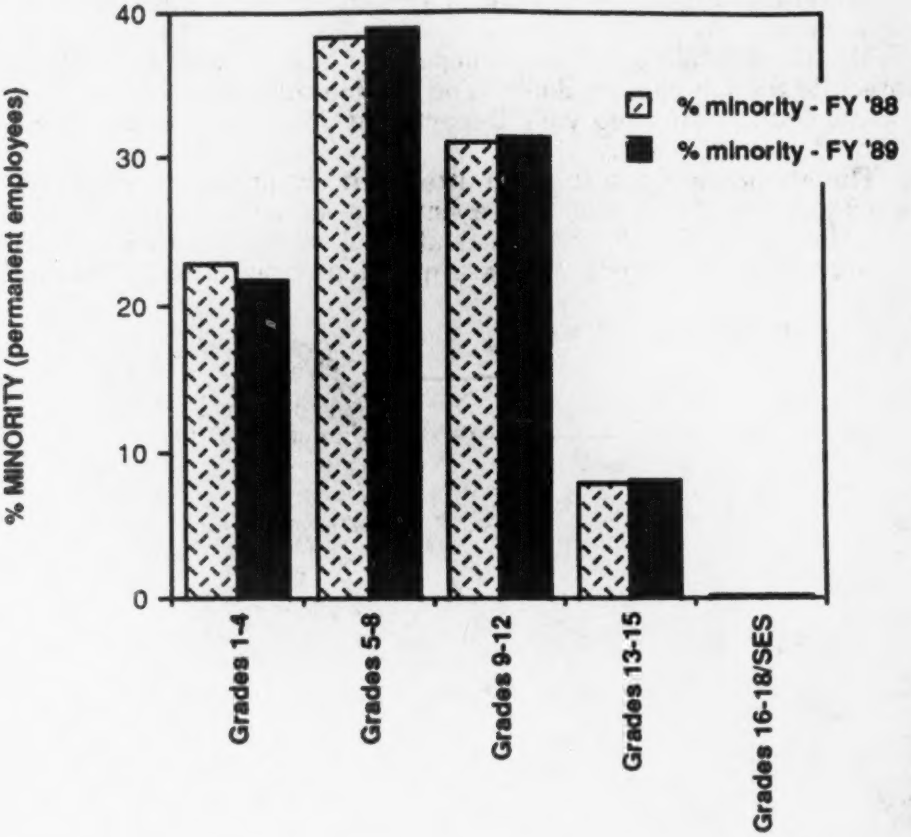
	1990 Enacted	1991 Request	Change
BLM	$0.4	$0.4	--
MMS	--	0.3	+$0.3
OSM	--	0.3	+0.3
BOR	0.7	0.9	+0.2
USGS	--	0.7	+0.7
BOM	--	0.3	+0.3
FWS	0.6	0.6	--
NPS	--	0.5	+0.5
BIA	--	0.2	+0.2
OS	--	0.1	+0.1
	$1.7	$4.3	+$2.6

Information follows which shows the grade distribution for female and minority personnel and illustrates the progress the Department has made in promoting women and minorities.

GRADE DISTRIBUTION FOR FEMALE PERSONNEL



GRADE DISTRIBUTION FOR MINORITY PERSONNEL



Mr. **Bevill**. I pointed out the other day that in the year 2000, I will be asking the question: Would you tell us how many men you have hired? Because Mrs. Boggs is doing such a good job.

Secretary **Lujan**. I will turn it around, we have more men than women.

Mr. **Bevill**. We are always pleased to have you with us. We appreciate the job you are doing. You are making plans for the future of the country through your Department. We miss you, but are delighted with where you are.

The Members of the subcommittee that are absent may also have questions for the record. I also have questions here submitted by the Honorable Tim Johnson of South Dakota for the Commissioner to answer on the record. We have questions from other members as well.

[The information follows:]

QUESTIONS SUBMITTED BY THE HONORABLE VIC FAZIO FOR THE COMMISSIONER OF RECLAMATION

ADMINISTRATION SUPPORT FOR A MULTIPURPOSE DAM AT AUBURN

Question. Mr. Commissioner, for a number of years former Interior Secretary Hodel indicated to this committee that he felt administration and congressional approval of a multipurpose dam at Auburn would be unlikely because complete non-federal financing would be required and none had been proposed since the Interior Department developed a seismically safe concept in 1980. Quite recently, the Interior Department essentially turned thumbs down on a local proposal to finance the project under certain conditions of federal support. Further, federal water contractors in California have indicated they are not interested in purchasing water developed from an Auburn's integration into the Central Valley Project. Lastly, studies done for Sacramento County indicate that its own water needs can be met by existing supplies through the year 2015, and perhaps beyond.

We have also witnessed the rise of the wetlands issue to the top of the administration's agenda, one indication of which was the Environmental Protection Agency's denial of a 404 permit for the Two Forks Dam in Colorado.

Nonetheless, it continues to be true that in time, if California grows as projected, new water sources will be needed from somewhere. How soon, whether they will come from conventional sources like dams or unconventional ones, and basic questions of that nature are very much in the debate. But some feel strongly in the case of Auburn that the needs are great and imminent, and remain interested in the Bureau's pursuit of the project.

As you know, the Sacramento Area Flood Control Agency has recently selected as its preferred option a flood control dam which could be expanded in the future to meet water and power needs when political support becomes strong enough for them. Sacramento, as you also know, is on a very tight schedule to get this major flood control project authorized by 1992. If it fails to get an authorization on schedule the considerable threat to lives and property will continue unnecessarily.

Continued proposals for a multipurpose Auburn raise concerns about the effects which it might have on the Sacramento community's efforts for a solution to its flood difficulties. We have heard from the Office of Management and Budget in the past year and more recently from other sources that it would not make sense for the administration to study two, essentially competing projects at Auburn simultaneously and that, probably, one or the other would be administratively stopped.

We also are aware that when reviewing a draft environmental impact statement for adequacy the Environmental Protection Agency will comment on the need for the project versus its general environmental impacts. Among other things, it must determine that the need for the project justifies the filling of wetlands. More specifically, it must determine that there are no reasonable alternatives to the filling of wetlands in the implementation of the project, or to the project itself for achieving its purposes.

Lastly, it also seems probable that the U.S. Fish and Wildlife Service and perhaps the Park Service will have concerns within the Department of the Interior about the impact of a 2.3 million acre foot reservoir on the natural and archeological values in the canyon.

If the Bureau of Reclamation is to pursue the multipurpose Auburn project and put at risk the existing Corps feasibility study, the schedule for authorization by 1992, and perhaps the eventual authorization of flood control itself, Sacramento and the Committee deserve assurances that in the end, several years from now, the administration will fail to approve the project. It seems probable that on at least one of these grounds the multipurpose project would encounter delay if not defeat.

It is my intention to follow up this question with a letter addressed to the administration as a whole, asking for a general commitment to the project so that the community knows that pursuing it would not end in a potentially fatal diversion of time and effort. However, I and the Committee would appreciate your comments now on what the Bureau is really in a position to do in order to meet the 1992 authorization schedule with a proposal that is likely to pass. The Bureau has done a fair amount of work recently on the feasibility aspects of the traditional multipurpose project and some alternatives, but is has done little if anything to prepare an environmental impact statement for them.

Answer. The Administration looks forward to receiving your letter and responding to any questions you may have. The Bureau has indeed undertaken a great deal of work on the Auburn Dam since its authorization in 1965. However, many different entities - Federal, State, and local bodies - are currently involved in discussions over a revised multipurpose Auburn Dam. Because of this diverse involvement, a number of significant issues have to be resolved before the Bureau of Reclamation can offer its technical engineering expertise towards a multipurpose dam. Among these issues are the acceptability of locally-sponsored financing, the size of the dam, its environmental impacts, project purposes, and marketing of project power and water components.

If there is a general consensus among local entities to support a revised multipurpose dam, the Bureau will be willing to offer its expertise to help prepare the supporting documentation necessary for legislation and to submit such documents for Administration and Congressional consideration.

Question. Can the Bureau complete a feasibility study and environmental impact statement in time for Congress to consider a multipurpose option in 1992?

Answer. Because of the many uncertainties surrounding construction of a multipurpose dam, such as its size, scope, financing and project purposes, the Bureau of Reclamation is currently unable to determine whether or not it could complete a feasibility study and environmental impact study or statement in the time frame suggested.

Many of these uncertainties cannot be controlled by the Bureau and it cannot guarantee that such supporting material can be prepared within this short period of time.

Question. If so, please provide the Bureau's schedule for completion of the necessary studies for congressional consideration as well as the anticipated Federal and non-Federal costs (by fiscal year) for completing such studies.

Answer. The Bureau has not prepared a schedule for completing feasibility and environmental impact studies for the Auburn Dam because of the uncertainties surrounding the proposed multipurpose dam.

Question. What assurances can the Bureau provide the Committee and the community that whatever the Bureau does will end up being supported by OMB, EPA, U.S. Fish and Wildlife Service, and the Administration as a whole?

Answer. Because the financing commitments by local sponsors have not been secured, and because of the many other uncertainties, the Bureau of Reclamation cannot state with certainty what its role in construction of a multipurpose dam would be. Therefore, we cannot at this time assure the Committee that the Administration would support a multipurpose dam.

CENTRAL VALLEY PROJECT O&M DEFICITS

Question. I know that you have heard from the CVP water districts about their concerns regarding the method by which the Bureau of Reclamation is calculating O&M deficits for water districts in the CVP. By enacting the Coordinated Operations Agreement (P.L. 99-546) Congress intended to encourage water districts to begin paying full O&M costs for the Project as soon as possible to avoid incurring any deficits. How do you intend to address the O&M deficit concerns of these water districts?

Answer. The irrigation ratesetting policy for the Central Valley Project was formally approved by the Secretary's office in May 1988, and it addressed and accommodated contractors concerns to the extent possible. However, critical matters such as the proper implementation of P.L. 99-546 could not be ignored. P.L. 99-546 required that at the time of new or amended water delivery contracts, that provisions be included to provide repayment of existing or future deficits. The approved method thus adopted for accounting for O&M deficits is to perform annual fiscal year accountings of the financial results of irrigation operations, by individual contractor. Many contractors have made voluntary O&M deficit payments to avoid or minimize the accumulation of deficit balances and deficit interest charges. Deficit balances are accumulated and updated each fiscal year for all water contractors, and at the time of a new or amended water delivery contract, provisions are included for repayment of the O&M deficit balance outstanding at such time.

Question. Is it the Bureau's view that O&M deficits should be charged retroactively prior to 1985 to individual districts rather than being spread project wide in future water rates?

Answer. Individual contractor accountings have been determined for the period 1949 through the present. Accumulated deficit balances as of September 30, 1985 are non-interest bearing, and deficits arising thereafter are interest bearing. Pursuant to the provisions of P.L. 99-546, annual accountings of revenues and expenses are maintained by contractor. O&M deficit balances are accumulated by individual contractor and are not spread project wide.

SACRAMENTO RIVER DRAFT EIS

Question. A large portion of the 1988's deficit is attributable to the Draft EIS for the Sacramento River Service Area. What were those costs and is it the Bureau's position that CVP water districts should pay for the costs of this EIS as well as the cost of the revised EIS, which is now being prepared? What are the anticipated costs of the second EIS?

Answer. Costs for the Sacramento River Service Area Draft EIS as of September 30, 1989, were $547,000. Reclamation believes that these costs are reimbursable operation and maintenance costs applicable to water sales, and they are properly chargeable to the Central Valley Project water users. The public comments received on the initial draft EIS are currently being evaluated. Additionally, certain groundwater and hydrologic studies are being finalized which will provide needed data for the revised EIS. These data will be available in a few months which should provide the basis for a determination as to the approach to be taken in the revised EIS. It is difficult to estimate the cost of completing the second EIS, but it could be in the range of $2 to $3 million.

COLEMAN NATIONAL FISH HATCHERY

Question. Mr. Commissioner, House Report 101-235, the Conference Report to accompany the bill making appropriations for Energy and Water Development for the Fiscal Year ending September 30, 1990 and for other purposes, indicates the conferees concern with the losses in hatchery production at Coleman National Fish Hatchery in California. The report indicates that the conferees "strongly urge the Bureau of Reclamation to establish the responsibility and a definite schedule for this most important rehabilitation and repair work and provide adequate funds for this vital program."

What steps has the Bureau taken to implement this directive?

Answer. During the development of the FY 1991 budget the Department determined that the Fish and Wildlife Service will continue to be responsible for the rehabilitation of the hatchery. It is my understanding that the fiscal year 1991 budget submitted by the Fish and Wildlife Service includes funds for construction of a pollution abatement system and an intake structure at Battle Creek #3.

Question. Has the Bureau consulted with the California Water Commission and others interested in the renovation of Coleman?

Answer. The Bureau previously consulted with the California Water Commission concerning the rehabilitation of Coleman. Since the decision for the FWS to continue responsibility for the rehabilitation work at Coleman, Reclamation is no long seeking further consultation.

Question. Does the Bureau accept full or partial responsibility for the renovation of the facilities at Coleman?

Answer. Yes, Reclamation accepts partial responsibility. The Coleman National Fish Hatchery was originally built by Reclamation in 1943 as a part of the Shasta Division and Reclamation initially funded the operation and maintenance of the facility by the U.S. Fish and Wildlife Service (FWS). Under a 1948 agreement, Reclamation transferred the total responsibility for the operation, maintenance, and rehabilitation of the Coleman National Fish Hatchery to FWS. The 1948 agreement was amended in 1949 to provide that the project was a continuing responsibility of both FWS and Reclamation. The Department sees no need at present to change this arrangement.

Question. Has the Bureau developed a definite work schedule for the renovation of Coleman?

Answer. Reclamation has not developed a work schedule since the U.S. Fish and Wildlife Service will be the responsible agency for the rehabilitation of Coleman.

Question. What level of funding does the Department of the Interior have allocated for this work in fiscal year 1991?

Answer. It is our understanding that the U.S. Fish and Wildlife Service has requested $1.5 million for this work in fiscal year 1991.

SOLANO PROJECT STUDIES

Question. Mr. Commissioner, the Bureau proposes two studies pertaining to the Solano Project in the 1991 budget, neither of which have been requested by the local water agencies, or are going to be cost shared, or are supported by the local project, or were even included in the budget with its knowledge.

One study would devote $60,000 to the integration of the Solano Project into the Central Valley Project. Part of the rationale is that integration might benefit the Solano Project. It is my understanding, however, that several years ago Solano rejected this idea, and has instead focused extensively on plans to maximize its water yields by coordination with neighboring counties, its own groundwater supplies and the State Water Project.

Why was this study proposed in the budget when it had previously been rejected by the potential local sponsor?

Answer. This study was proposed since the demands for additional water supplies identified during the preparation of the Central Valley Project Water Contracting EIS far exceeded available supplies. There are several small projects that are located on tributaries to the Sacramento River. These include the Solano Project on Putah Creek and the Orland Project on Stony Creek. By integrating the water supplies from these projects with that from the rest of the CVP, more operational flexibility would be provided and management of the available water could be optimized. This optimization could result in a larger total supply for all of the water users.

Question. Why was the local sponsor not at least informed the study was to be included in the budget?

Answer. The Bureau thought that the local sponsors were aware that this study was being considered for inclusion in the budget. A similar study was discussed with local consultants representing the Yolo-Solano coordinating group prior to the decision to include this study in the fiscal year 1991 budget. As the study will look for means to optimize the Solano Project water supplies in conjunction with CVP supplies, Reclamation believes this study is to the benefit of all the parties involved.

Question. Has the Bureau asked the Solano County Water Agency if it would be willing to cost share the study? Is the Bureau aware that the Agency would not?

Answer. At this formative stage, the Bureau has not formally asked the Solano County Water Agency to cost-share in this study. After defining the scope and plan of study for this investigation, the Bureau intends to contact water users within the Central Valley, Solano Water Authority, and Orland Water Users Association. Consultants representing the Yolo-Solano Coordinating Group have recently contacted the Bureau staff to discuss such a coordinated study approach and we believe these entities would be willing to cost-share.

Question. Are you aware that Solano Project Water cannot legally be distributed outside the Solano service area under conditions of the water rights permit issued by the State Water Resources Control Board, and that any integration proposal would require major construction of new facilities to link the projects? Are you proposing Federal funding of this construction?

Answer. The Bureau is aware of the current Solano Project water rights requirements for utilization of the Solano Project water supplies. Any proposals to distribute water outside the Solano service area would require a modification of existing permits through the State Water Resources Control Board. It is recognized that any proposed alternatives or implementation of any recommendations from the study may require new or additional Congressional authorization. While some integration proposals might require construction, the current study is to investigate opportunities for optimizing the management of water supplies and does not propose any Federal funding for construction.

Question. The Bureau has also budgeted a study of the flood potential and seismic considerations at the Monticello Dam. The Solano Irrigation District has just spent $100,000 to begin an analogous study, a fact of which the Bureau is aware. The Bureau was even a participant in the Solano study and has been provided all the data from it.

Why was this apparently duplicative study proposed?

Answer. The Bureau's Safety Evaluation of Existing Dams Report, dated January 29, 1986, has classified the dam as FAIR, which indicates that no existing dam safety deficiencies are recognized for normal loading conditions. However, for infrequent hydrologic and/or seismic events, a deficiency may exist. The SEED Report identified that the dam would not fail if overtopped during the probable maximum flood or from credible earthquake. Since the publication of the SEED report, additional seismic information and knowledge of local fault conditions has become available. In accordance with Monticello Dam's priority (293) on the Interior Dam Safety Task Force Priority List, the Bureau has scheduled these investigations. To provide themselves with updated knowledge of the conditions, to confirm the Bureau's preliminary results, and to ensure that State Safety of Dams criteria would be satisfied, the District decided to proceed with these studies. The Bureau reviewed the results of these reports and will use the data in the future analyses. However, it is still felt that these results may be updated with available seismic information at the time of the analyses.

Question. Why was it proposed without the knowledge of Solano County?

Answer. We felt the County was aware of this since the Solano Irrigation District manager, representing an informal group of Solano County Agencies, met with the Bureau and State of California Division of Safety of Dams to discuss the results of the Bureau's SEED Report and to receive input from the State as to whether it has more restrictive criteria.

Question. Why did the Bureau not ask Solano if it would like to cost share the study? Is the Bureau aware that Solano would not?

Answer. I have been informed that the District indicated that it wanted to reaffirm the Bureau's preliminary results to ensure that major modifications would not be required to the dam. At this time, the

Bureau has not initiated updates to its seismotectonic evaluation. It was indicated that the Bureau would be conducting additional investigations, which would be required prior to determining the needs for future modifications. These investigations would be prepared with non-reimbursable funding, but could not be initiated in the time-frame desired by the District. Consequently, the District chose to proceed with the studies and make the results available to the Bureau for use in these investigations.

(Mr. Fazio comment) These studies are being proposed at a time when I have introduced legislation to authorize the transfer of the Solano Project to a consortium of local water agencies, who could better manage it in conjunction with other supplies to better serve the area.

It is difficult to avoid the conclusion that these two unnecessary studies were inserted into the budget purely to undercut two of Solano's arguments in favor of the bill:

1. The project is stand alone, and its divestiture would not compromise other CVP users or uses.

By implying that there might be integration benefits, the Bureau's budget proposal could be used as the basis for disputing the stand alone argument. However, there is no real prospect that integration with the CVP would help Solano or any other entity in California. Given an impending water shortfall of 170,000 acre-feet in Solano, and given the fact that the Solano Project provides 65 per cent of Solano's water supply, there is little likelihood that Solano can spare water from this project to remedy shortfalls elsewhere in the State. Solano's is already as serious as they get. There is also little likelihood that the Bureau could manage the project better in conjunction with other sources to better meet local needs either.

2. Solano can operate and maintain the dam properly, since it has been doing it for a number of years.

The Bureau is creating the presumption that there might be some seismic problem with Solano may or may not be able to handle. In fact, one of Solano's reasons for wanting to own the project is that it can assume responsibility for repairs which the Bureau has long neglected due to federal budget constraints. Maintenance of the project and safety would improve if Solano owns the Project.

QUESTIONS SUBMITTED BY HONORABLE WES WATKINS FOR THE COMMISSIONER OF RECLAMATION

McGEE CREEK

Question. What remains to be completed at the McGee Creek site? What is the status of road completion and associated measures such as signing and striping, etc.?

Answer. Remaining work by Reclamation includes correction of erosion problems and deficiencies identified during the project turnover inspection with the McGee Creek Authority. This work is scheduled for completion the spring of 1990. Completion of the Natural Scenic Recreation Area entry facilities will be accomplished by the State Parks and Tourism Division this calendar year.

The west side road is 100 percent complete, except for signing and striping, and is open to the public. The east side road is paved, signed and striped, and only minor erosion control work remains on the contract. This road is presently open to the local residents and will be open to the general public pending completion of the Natural Scenic Recreation entry station by the State.

Question. Will the Bureau assume the responsibility of signing miscellaneous road segments constructed by the Oklahoma Department of Tourism and Recreation and others?

Answer. Minimum basic signing of certain road segments is the responsibility of Reclamation and necessary funding will be made available to accomplish that work.

W.C. AUSTIN PROJECT, ALTUS DAM

Question. You have included $5.2 million to continue the work at the W.C. Austin Project, Altus Dam, Oklahoma, in fiscal year 1991. Specifically, how will these funds be utilized?

Answer. These funds were programmed for structural modification of Altus Dam and Dikes. However, currently all modifications related to Safety of Dams concerns at Altus Dam are suspended pending a review of the proposed corrective actions under the recently revised Safety of Dams Policy and Guidelines. The review, to be completed in April 1990, will determine if structural modification is necessary or if Safety of Dams concerns could be mitigated with the installation of an early warning system as the sole corrective action.

Question. Should the project receive the FY 1991 requested level, what additional funds are needed and what activities are scheduled to complete the project?

Answer. At this time, the funds which have been requested should be sufficient to complete planned work.

WASHITA BASIN PROJECT, FOSS DAM

Question. The Bureau has $493,000 scheduled for dam safety work in FY 1990. Specifically what work is being done?

Answer. A review of the proposed corrective actions is underway. An Early Warning System Design Team is being established to develop the design for an Early Warning System. Following the design work, implementation of the Early Warning System will be started if such an alternative is determined to be adequate.

Question. What additional work will need to be done, and if further work is needed, at what cost?

Answer. At this time, it is expected that only the early warning system will be installed and available funds will be sufficient for that.

NORTHWEST OKLAHOMA WATER SUPPLY STUDY

Question. What is current status of the study? When will completion of the study occur and will further appropriated funds be necessary for the Congress to complete the study?

Answer. This study, originally scheduled to be completed in 1989, has been rescoped at the request of the study sponsors. As a result of the additional work involved, the study is now scheduled for completion in early FY 1991. Key pieces of information are being developed for Reclamation by the Corps of Engineers, U.S. Geological Survey, U.S. Fish and Wildlife Service, Oklahoma Water Resources Board, and Oklahoma Economic Development Association. A Special Report will contain a water development plan for meeting the long-term water needs of cities and towns with a population of 50 or more, rural water districts, and other water-user entities in the eight-county panhandle area of Oklahoma and nearby communities in southwestern Kansas. The water development plan will include both groundwater and surface water evaluations.

Additional funding of $150,000 would be needed in FY 1991 to complete the Special Report, which could be financed within the funds already requested for FY 1991. The President's budget for the Bureau of Reclamation was based on the Administration's support for the Bureau's priorities. While we could spend an additional $150,000 for the Special Report, any increase above the President's budget levels for this project would need to be offset by corresponding reductions in other projects or programs so that deficit reduction targets can be met.

Question. Are there any preliminary findings that you might share with the committee with regard to this study? Is there enough information on any specific project sites that work could begin this fiscal year to obtain appropriations and start the process in FY 1991?

Answer. Preliminary findings indicate that the existing Corps of Engineers Fort Supply Dam and Reservoir on Wolf Creek might be modified to capture and store about another 10,000 acre-feet of water to be distributed essentially in the five eastern-most counties of the study areas. Also, Forgan Dam and Reservoir site on the Cimarron River at the Kansas-Oklahoma stateline might be developed to supply municipal, rural, and industrial water to the three Oklahoma Panhandle counties along with the City of Liberal, Kansas, and other water-short entities in the vicinity. An alternative to the Forgan Dam and Reservoir site would be development of a regional groundwater well system to serve the western communities.

More detailed information on alternatives for specific project will not be available until August 1990, at which time we will have a better idea as to project feasibility.

FOSS LAKE

Question. Are there available water resources at Foss Lake that could be utilized for M&I purposes? How much capacity is available without triggering the repayment agreement?

Answer. No, under existing reservoir operations, there are no water resources available for M&I purposes. Even though less than a third of Foss Reservoir firm annual yield is used by the member cities, Foss Reservoir member cities own all the water rights to the reservoir yield. The present water use schedule submitted by the member cities to the Oklahoma Water Resources Board shows that all the reservoir yield will be utilized by the year 2020. This appears to be optimistic. Presently, delivery of reservoir water is limited by the capacity of the desalting plant to a little less than 3 million gallons per day mgd. Although the cities are only using an average of 1-1/2 mgd now, during some dry months all the plant capacity is used.

Any additional use of Foss Reservoir water on a regular basis would most likely exceed the capacity of the desalting plant. Should the desalting plant be enlarged to treat more than 3 mgd, repayment by beneficiaries would be necessary.

Question. What would be the cost of constructing a waterline from Foss Lake to serve the old military base industrial site located at Burns Flat, Oklahoma?

Answer. The cost would depend on the amount of water to be delivered. For example, delivery of 1.0 million gallons per day would require a 16 mile, 14-inch pipeline, plus pumping plant. These facilities would cost roughly $4.3 million. Annual operation and maintenance expenses would be $74,000. Treatment through the desalting plant is approaching $1.00 per thousand gallons and would be an added cost.

PRIVATE SECTOR LAKE DEVELOPMENT

Question. Please provide for the record a list of Bureau of Reclamation lakes where a significant amount of private sector development has occurred around the immediate area of the lake, and describe what private sector development occurred around each specified lake.

Answer. Reclamation has numerous locations throughout the Western States where private sector development has occurred. Some examples include: seven resort facilities around Lake Berryessa, California; the community of Electric City adjacent to Banks Lake, Washington; 265 cabin sites around Canyon Ferry Reservoir, Montana; the community of Lake Havasu City adjacent to Lake Havasu, Arizona; and the community of Hyrum adjacent to Hyrum Reservoir, Utah.

SULPHUR PIPELINE, ARBUCKLE PROJECT

Question. What is the status and capability of the Sulphur pipeline element of the Arbuckle Project?

Answer. The $25,000 available in fiscal year 1990 will be used for basic data gathering by the Bureau of Reclamation and the U.S. Geological Survey in connection with the authorized purpose of the pipeline. Reclamation has an additional capability of $500,000 in fiscal year 1991 for the project.

The President's budget for the Bureau of Reclamation was based on the Administration's support for the Bureau's priorities. While we could spend an additional $500,000 for the Arbuckle Project, any increase above the President's budget levels for this project would need to be offset by corresponding reductions in other projects or programs so that deficit reduction targets can be met.

Question. Please describe the Federal benefit of the pipeline element of the project.

Answer. Any Federal benefits would be related to the Chickasaw National Recreation Area. The pipeline would be a replacement water supply for the City of Sulphur, Oklahoma, eliminating their dependence on groundwater that may be resulting in diminished springflow in the Recreation Area. The following description of the value of the natural springs in Chickasaw National Recreation Area and their possible relationship to the City of Sulphur municipal wells was taken from a letter prepared by the Park Superintendent, dated March 1, 1990.

"Chickasaw National Recreation Area includes the area that was originally established as Sulphur Springs Reservation in 1902 and Platt National Park in 1906. The area was set aside to preserve mineral and freshwater springs. Of the 33 springs that the Park was originally established to preserve, only 19 are still flowing. Two of the most popular mineral springs stopped flowing in the early 1970's, but remaining mineral springs still provide water to a large number of park visitors. Two major freshwater springs, Antelope and Buffalo provide the water source for park streams which are a primary visitor attraction. During several periods of drought in the recent past, these two springs have stopped flowing for several months at a time. As a result, park visitation dropped dramatically during these periods."

"We can say with a high degree of certainty that capping of the city wells would not adversely impact the flow from any of the park springs. It is possible that the large freshwater springs would maintain their flow longer during drought periods if the city wells were capped. Additionally, there is a possibility that capping of the city wells would eventually result in a restoration of the water table so that mineral springs that have been dry for many years would resume flowing. However, there is no certainty that these two possibilities will occur."

"The springs are one of the primary resources of the Park. The integrity of the Park has been seriously compromised because some springs have stopped flowing. If additional springs were to stop flowing, it would, to a very large extent, negate the purpose for which the Park was established."

Question. It is my understanding the Bureau has sufficient authorizing authority to proceed with full Federal construction of the pipeline. Can you comment on this matter?

Answer. The Act of August 24, 1962, P.L. 87-594, authorizes the Secretary of the Interior to construct, operate, and maintain the Arbuckle Federal Reclamation Project, including pumping plants, pipelines, and other conduits for furnishing water for municipal, domestic, and industrial use.

Question. Is additional authority needed for construction of the associated water treatment facilities to allow for a fully federally funded facility?

Answer. Yes, additional authority would be needed. P.L. 87-594 does not provide an authorization for water treatment facilities.

Question. Should Federal funds be provided for full Federal construction of the pipeline and associated water treatment facilities what actions must be taken by the city and/or state for this project to become reality?

Answer. Assuming that proper authorization is provided, it would then be necessary for the City and/or State to enter into an appropriate repayment contract.

CIMARRON RIVER, WATER QUALITY

Question. I understand the Governor of Oklahoma recently visited with you about the Bureau's capability to conduct water quality improvements on the Cimarron River. What actions can the Bureau take in terms of studies and/or construction projects to address and improve the water quality in the Cimarron River, and what is your capability for funding such activities in fiscal year 1991?

Answer. I have recently discussed this subject with the Governor. State and local officials are concerned with the dwindling supply of potable water within the lower basin. Surface water in the main stream of the Cimarron River is degraded with salts, primarily chlorides. Reclamation has no funds for that purpose. Study of the problems and needs of the river and identification of alternative solutions to the problems should be the initial action. If it were determined that there is an appropriate Federal role, Reclamation would have the capability to use $100,000 in FY 1991 to initiate a study, providing non-Federal matching contributions would be available.

The President's budget for the Bureau of Reclamation was based on the Administration's support for the Bureau's priorities. While we could spend an additional $100,000 for Cimarron River, Water Quality, any increase above the President's budget levels for this project would need to be offset by corresponding reductions in other projects or programs so that deficit reduction targets can be met.

QUESTION SUBMITTED BY THE HONORABLE WES WATKINS FOR THE SECRETARY OF THE INTERIOR

COST-SHARING--CORPS OF ENGINEERS

Question. The Corps of Engineers has a two-phase study process in which the reconnaissance phase is conducted at full Federal expense while only the feasibility phase is cost shared. Why does the Bureau require cost-sharing for its entire study process? Why shouldn't the Corps and Bureau policies be uniform?

Answer. The Secretary of the Army receives authority and cost-sharing policy direction from Public Law 99-662. That authority and direction does not pertain to the Secretary of the Interior. Interior's present policy is to require at least a 50 percent cost sharing agreement with non-Federal sources on all studies except those having broad general application. However, we recognize there would be some advantages to having a consistent approach among Federal water resource agencies as related to non-Federal entities.

QUESTIONS SUBMITTED BY THE HONORABLE JIM CHAPMAN FOR THE COMMISSIONER OF RECLAMATION

LEGACY '99 - OPERATION AND MAINTENANCE

Question. For the "Legacy '99" initiative, you are requesting an increase of $22.2 million over last year for Operation and Maintenance, which will be used to continue the reduction of backlog of operation, maintenance, and replacement work. How much of this backlog was reduced last year?

Answer. Currently there is a total of $30.0 million allocated in fiscal year 1990 for reduction of the backlog.

Question. With this funding increase, which you say will be affecting 35 Reclamation projects, how much backlog of OM&R do you expect to reduce?

Answer. The fiscal year 1991 request includes a total of $32.2 million for reduction of the backlog.

Question. Why did the Administration feel that the dams funded under the Bureau of Indian Affairs would be better served under Reclamation?

Answer. A 1989 Office of the Inspector General Audit Report of the BIA's Dam Safety Program was critical of the program's effectiveness and recommended use of the Bureau of Reclamation to provide the necessary technical leadership. Additionally, the BIA lacks the in-house technical capability to implement the needed repairs to its dams. Reclamation has performed inspection and analysis on BIA dams since 1978 and already has a substantial amount of information in its files regarding the condition of BIA dams. Given the serious condition of those dams, we believe it is prudent to take full advantage of Reclamation's engineering expertise in correcting the problems.

CONSTRUCTION PROGRAM

Question. In your statement you mention that you want to concentrate construction funds on projects already substantially underway. How many requests for new construction projects have you received?

Answer. New construction projects depend on specific project authorizing legislation. The only authorized project for which no funds are requested in FY 1991 is the Umatilla Basin Project.

Question. How many incomplete construction projects are not receiving funds this year?

Answer. Garrison is the only project which is under construction and has no funds in the FY 1991 request.

Question. When do you expect to be able to consider any new construction projects?

Answer. This is unclear. The Administration's views on any new construction project will be determined by such factors as the overall condition of the Federal budget, the extent of Federal interest in the project, and the economic and environmental feasibility of the project.

OGALLALA AQUIFER RESEARCH AND DEMONSTRATION PROJECT

Question. My question concerns the Ogallala Aquifer Research and Demonstration Program. This project has been authorized since 1986, but has never received funds. Has the Bureau of Reclamation ever considered funding for this project? Do you feel this project would fit within the Bureau's mission in light of the focus on environmental concerns?

Answer. We believe your reference is to Title XI of the Water Resources Development Act of 1986 (P.L. 99-662) which amends the Water Resources Research Act (P.L. 98-242) by adding a new title, "Title III - Ogallala Aquifer Research and Development". The Act, which calls for a comprehensive research and development program for the Ogallala aquifer, establishes a High Plains Study Council which includes a representative of the Secretary of the Interior. As you point out, the program has never received funds from Congress.

Some of the research areas covered by the Act, such as water use efficiencies fit well within Reclamation's "New Direction." In fact, the fiscal year 1991 request includes similar research and the Groundwater Recharge Demonstration Program.

SAN ANGELO PROJECT, TWIN BUTTES DAM

Question. When one of the Secretary's major goals under the Legacy '99 initiative is calling for safety of dams, and the Bureau is concentrating on finishing projects already underway, why is there no request for funds after the initial FY 90 funds of $498,000?

Answer. The seepage problems at Twin Buttes Dam have been a matter of concern for many years and with the fiscal year 1990 funding Reclamation expected to continue with corrective action. However, studies have shown that there is also a potential problem with the dams ability to control the newly calculated design flood. Therefore, seepage control work was suspended until a coordinated approach could be developed to consider the new design flood as well as the seepage work. These ongoing activities are funded under the Modification Reports and Preconstruction Activity in the Safety of Dams program.

Question. Last year the Commissioner said that a contract was to be awarded this year for correction of the seepage problem at San Angelo, Twin Buttes Dam. Has that contract been awarded?

Answer. Award of the contract has been suspended until a fully coordinated approach can be developed to the problems at Twin Buttes Dam.

Question. The Commissioner also stated that this corrective work for the seepage was scheduled to be finished in 1992. Why are there no funds requested for this in the FY 91 budget?

Answer. The corrective work on Twin Buttes Dam is suspended until Reclamation can address both the seepage problem and the issue of a newly calculated design flood which is greater than the original design flood of the dam.

SAN JACINTO PROJECT

Question. What is the status of the San Jacinto Project? I notice there are no funds requested for construction. What was the result of the investigation, and why is this project not included in the construction funding?

Answer. The San Jacinto Project Planning Report/Final Environmental Statement was filed with the Environmental Protection Agency in 1988. The purpose of the proposed San Jacinto Project was to construct a dam and reservoir to provide municipal and industrial water, flood control, recreation, and fish and wildlife with benefits in the San Jacinto River Basin.

There is local interest in converting from groundwater to surface supplies. The Lower Lake Creek site would provide 62,000 acre-feet per year at yield. Some market areas could be served by gravity or with minimal pumping from this site. Flood control storage could provide some downstream protection. Project authorization would be required before funding can be requested in the construction account.

QUESTION SUBMITTED BY THE HONORABLE SILVIO O. CONTE FOR THE SECRETARY OF THE INTERIOR

NEW DIRECTION

Question. Mr. Secretary, we have all heard much talk about the "new mission" of the Bureau of Reclamation during the past year. As I understand it, this refers to a new emphasis on environmental management activities and a withdrawal from traditional "big dam" projects. Is this characterization fair?

Answer. I don't think it is unfair, but the new emphasis of Reclamation is really broader than "environmental management." I think a more accurate characterization is a shift from resources development, which includes "big dams" as you mentioned, to resources management. The term resources management is broad and encompasses not only the environment but also includes an emphasis on water conservation, system optimization, improvement in water quality, rehabilitation and betterment of existing facilities, conjunctive use of surface and groundwater supplies, and joint use of non-Federal and Federal projects and facilities.

QUESTIONS SUBMITTED BY THE HONORABLE SILVIO O. CONTE FOR THE COMMISSIONER OF RECLAMATION

Question. Generally, what has the Bureau done during the past year to advance its new mission?

Answer. During fiscal year 1990, the Bureau has oriented all of its new studies towards the accomplishment of the goals just mentioned. In developing its budget requests it has placed a high priority on increased funding for operation and maintenance, which is the Bureau's highest priority under its "new mission". It has developed new initiatives for fiscal year 1991 on global climate change, wetlands development, drought management, and recreation and fish and wildlife administration at Bureau of Reclamation facilities. In the research program, resources are being oriented to projects consistent with the Bureau's "new mission". Finally, the Bureau continues to evaluate its existing programs and develop new program initiatives to focus its efforts on activities consistent with its "new mission".

Question. Has the Bureau's transition to "new mission" activities been as rapid as you would hope?

Answer. I think so. One must remember that the "new mission" also includes the commitment to complete the work that was in the pipeline when the new mission was adopted. This includes adequate maintenance and operation of existing projects, which is a high priority.

Question. Are there institutional barriers preventing a faster transition to "new mission" activities?

Answer. Not that I am aware of.

RECLAMATION REFORM ACT OF 1982

Question. As you know, the Reclamation Reform Act of 1982 represents a fundamental change in Reclamation law by limiting the maximum number of acres that an individual or legal entity can irrigate with federally subsidized water. The limit imposed was 960 acres. Last fall the GAO investigated the implementation of this law and found that large farms are taking advantage of a loophole in the law and reorganizing to receive subsidized water on more than 960 acres. Basically, farmers have reorganized their farms into smaller, multiple landholdings which individually qualify for subsidized water but which are still operated collectively as one farm. Clearly, Congress did not intend to permit farmers to avoid the purpose of the Reform Act by engaging in such legal paper shuffling. The GAO also found that these farm reorganizations are reducing Federal revenue and that the Bureau's implementing regulations do not reflect congressional expectations. Why hasn't the Bureau redrafted its implementing regulations to accomplish Congress' intent in enacting the Reclamation Reform Act? Congress will likely act this session to prevent further abuses of the 960-acre limit. Can we rely on the Bureau's support?

Answer. I understand that the Bureau has not redrafted the rules and regulations because, as written, they fully implement the RRA. The Congressional Research Service in a letter dated January 13, 1990, expressly disagreed with the conclusions of the GAO. It stated that the best source of congressional intent is the language of the statute itself and found that congressional "expectation" is not the same as congressional intent. Nonetheless, the Department and the Bureau of Reclamation will support legislative amendments to ensure clarity, and administrative responsibility with regard to the RRA. If new amendments to the RRA are enacted, the Department will prepare the implementing rules and regulations in accordance with the new provisions.

GARRISON DIVERSION UNIT

Question. Please summarize the basic obligations incurred by the Bureau under the Garrison Diversion Reformulation Act of 1986. To what extent has the Bureau fulfilled those obligations? Please explain why no money is included in the FY 91 budget for the Garrison project.

Answer. Reclamation is complying with the Garrison Diversion Unit Reformulation Act of 1986 (P.L. 99-294). The reformulated project is 31 percent complete. Through January 31, 1990, an amount of $376.5 million in Federal funds has been obligated compared to a total estimated cost of $1.43 billion. Since the Act was signed, all funds expended have been used in accordance with the provisions of the Act.

The Administration intends to terminate project activities on Garrison because the project is very costly, requiring more than $1 billion to complete. The irrigation investment per farm may reach $2.5 million, while the expected additional farm income will be approximately $25,000, a return on investment of about 1 percent.

Although the Reformulation Act addressed many issues which had plagued Garrison since it was authorized in 1965, the financial viability of the irrigation component of the project is uncertain. Specifically, the Inspector General has recently issued a report on the cost allocation for Garrison and he has determined that substantially more project costs are associated with the irrigation component of the Project than formerly assigned. The Bureau of Reclamation concurs with the IG report and has begun a full-scale review of the cost allocation which is scheduled to be completed in mid-1990. Correction of this inappropriate cost allocation will create a situation in which the irrigators may not be able to pay the operation and maintenance costs of the Project. Until this issue is resolved, Reclamation cannot execute a new repayment contract as required by the Reformulation Act.

The Bureau must also prepare an Environmental Impact Statement for the Project. Draft EIS's were completed in 1986. Development of the Final EIS has been awaiting completion of the James River Study. With the new uncertainties about the scope of the overall project, the Bureau is unable to define a "preferred alternative," and is, therefore, unable to proceed with the Final EIS.

It is apparent these two actions, a repayment contract and an EIS, will not be completed prior to the 1991 budget year.

In addition, there is some local opposition to acquisition of lands required to mitigate the impacts of project activities on wetlands, as well as acquisition of those lands required for wetland protection as directed by the Reformulation Act.

In summary, it is unlikely that prerequisites to construction, as established by Congress, can be met in the near future, and it is not clear that the project will remain economically viable for the users. For these reasons, the Administration believes that orderly termination of project activities is the most prudent use of limited Federal funds.

Question. Director Darman has indicated that he was unaware of previous agreements related to the reformulation of Garrison and that he would reconsider the decision to zero-fund the project. What is the status of any such reconsideration?

Answer. It is my understanding that the Office of Management and Budget is still in the process of gathering information about previous agreements related to the reformulated Garrison project. That process should be completed soon.

ACQUISITION OF MITIGATION LANDS

Question. The Bureau indicated in its witness statements for Fiscal Years 1988 and 1989 that acquisition of 4,000 acres of mitigation lands would be accomplished in FY 89 and subsequent years to achieve concurrency of mitigation with construction of project features. Has the Bureau accomplished this goal? If not, why not?

Answer. Yes. Reclamation acquired 2,365 acres in fiscal year 1988, 271 acres of which 45 acres were wetlands in fiscal year 1989, and so far in fiscal year 1990 has acquired 1,533 acres of which 253 were wetlands.

All funds programmed for land acquisition in 1990 have been spent on land acquisition. Several additional tracts have been recommended for acquisition, but will not be acquired until funds become available.

GARRISON REFORMULATION ACT

Question. As prescribed by the Garrison Reformulation Act, concurrency for mitigation requires that lands must be transferred to the U.S. Fish and Wildlife Service or other managing agency before credit can be achieved. How many acres were transferred in FY 89, FY 90 to date, and how many are expected to be transferred in the remainder of FY 90? How many acres must be transferred for the Bureau to accomplish concurrency as defined in the Reformulation Act? What is the Bureau's current plan and schedule for accomplishing concurrency?

Answer. Reclamation transferred 318 acres in fiscal year 1989 and 2,814 acres of which 721 acres were wetlands in fiscal year 1990 to the U.S. Fish and Wildlife Services. No additional lands are scheduled to be transferred prior to October 1, 1990. To date we have received mitigation credit for 2,420 acres of wetlands. 7,332 acres of mitigation land, which includes 1,833 acres of wetlands, would have to be transferred to reach concurrency with impacts to date.

Any mitigation required to offset impacts to National Wildlife Refuges are not included in the above for the refuges. Studies are ongoing with the Fish and Wildlife Service to determine mitigation requirements.

AUDUBON AND ARROWWOOD NATIONAL WILDLIFE REFUGES

Question. The North Dakota Chapter of the Wildlife Society has stated that, "... no significant progress has been made towards curtailing ongoing impacts at Audubon and Arrowwood National Wildlife Refuges and mitigating for past losses of habitat." In your statement for the Subcommittee last year, you indicated that the Bureau was, "continuing to develop a mitigation plan for the Audubon National Wildlife Refuge." What has delayed the performance of mitigation activities in these areas?

Answer. Recently, the U.S. Fish and Wildlife Service indicated potential project compatibility measures and actions required at the Audubon and Arrowwood National Wildlife Refuges as part of the James River Comprehensive Study. Since that time, Reclamation has been working with the FWS and the North Dakota Game and Fish Department to address the impacts and mitigation requirements. On the Audubon National Wildlife Refuge, Reclamation has moved to reduce the impacts to island habitat by lowering water levels. This action has been very helpful, and a definite decrease in impacts to both islands and shoreline erosion has occurred.

In its efforts to implement the best practicable mitigation plan, Reclamation prepared a Statement of Work in the fall of 1989 which recommended that Audubon Lake be lowered to elevation 1,840.0 (7-foot drawdown) so that topographic and other physical information could be gathered. The proposed drawdown met with considerable opposition, and an interagency oversight committee was established to reassess the SOW. In February, this committee recommended that the topographic data be gathered using a combination of sonar and aerial methods. Reclamation is scheduling underwater topography (sonar) for August of this year.

The ongoing impacts at Arrowwood are largely due to flood control operations of Jamestown Dam. A team was recently appointed to develop plans and actions that can be implemented to reduce impacts at Arrowwood. We are currently working with the affected state and Federal agencies in developing measures to reduce and/or mitigate impacts at the Arrowwood National Wildlife Refuge.

LONETREE RESERVOIR AREA

Question. Last year you indicated that 2,200 acres remained to be purchased at Lonetree, but that few acres would likely be acquired from willing sellers. How many acres were purchased from willing sellers in FY 89? What is the current status of land purchases at Lonetree? How many unwilling landowners are there? Why are they unwilling to sell?

Answer. In 1989, 451 acres were purchased from willing sellers in the Lonetree Reservoir area with 11 properties remaining to be purchased. Seven of these are no longer willing sellers because of about a 50 percent drop in land values. The remaining four would sell, but have defective titles, and friendly condemnation is the only way to acquire their property.

STATEMENT OF PRINCIPLES

Question. A Statement of Principles to Support the Agreement for Reformulation of the Garrison Diversion Unit was signed by Governor Sinner, supporters of the water supply benefits of the project, and several environmental groups including the National Audubon Society and National Wildlife Federation. Does the Bureau have a position as to whether the signatory parties have complied with the Statement of Principles to date? What is the Bureau's understanding of the respective positions of the signatory parties in relation to the Statement of Principles?

Answer. While compliance has been achieved in some areas, Reclamation believes that a number of outstanding issues remain unresolved. The parties agreed, "to support the jointly developed Garrison reformulation legislation, and the appropriations necessary for implementing all the purposes of the project, as reformulated." They also agreed, "to work towards the development of 'no net loss of wetlands' policies and guidelines for the State, in conjunction with the development and management of North Dakota's water resources and in recognition of the needs and concerns of farmers." Reclamation is not in a position to speak on behalf of the respective positions of the signatory parties as agreed in the April 14, 1986, Statement of Principles.

SYKESTON CANAL

Question. Two of the three Sykeston Canal alignments are within the Hudson Bay Drainage Basin and pose some risk of biota transfer to Canada. What is the Canadian position on the three canal alignments?

Answer. The Government of Canada provided comment on the Sykeston Canal Evaluation and Basic Assessment Report (Diplomatic note on May 31, 1980). The Canadian Government reiterated their concern regarding the potential transfer of biota from the Missouri River to the Hudson Bay Drainage Basin, and proposed the Canada and United States Consultative Group on the Garrison Diversion Unit meet. Specific comments on each alignment are summarized below.

Northern Alignment

The Canadian government strongly recommended that consideration of the Northern Route for the Sykeston Canal be abandoned. The proximity of this route to the Sheyenne River would substantially increase the risk of biota transfer, particularly in respect to bait bucket transfer, canal overtopping, canal overspray, and canal seepage.

Southern Alignment

The Canadian Government suggested that the Bureau should undertake further analysis of the Southern Canal Alignment. A canal route following the topographic contours would increase the integrity of the canal, reducing the risks to the Hudson Bay Drainage.

Missouri Basin Route

The Canadian Government expressed no concerns about the design or location of this route since there would be no impact on the waters of the Hudson Bay Drainage Basin.

KRAFT SLOUGH AREA

Question. How many of the proposed 2,000 additional acres were purchased in the Kraft Slough area in FY 89? How many additional acres does the Bureau anticipate purchasing for the protection of Kraft Slough? How many acres does the Bureau anticipate purchasing in FY 90. When does the Bureau plan to complete acquisition at Kraft Slough and what is the Bureau's estimate of costs to complete this acquisition?

Answer. Reclamation acquired 477 acres at Kraft Slough in FY 1989. Twelve appraisals on 2,645 acres were also completed, but negotiations have not yet been initiated. Reclamation does not plan on acquiring any land at Kraft Slough in FY 1990 due to the need to complete the acquisition plan.

Reclamation's plan has been to acquire lands for Kraft Slough on a willing-seller basis. It is estimated that $1.8 million will be required to complete the 4,000 acre acquisition. However, there are no funds requested in FY 1991 due to the Administration's proposal to terminate the project.

GARRISON DIVERSION UNIT

Question. What Garrison Diversion Unit activities were funded in FY 89 and how much did each activity receive? Please provide corresponding estimates for FY 90.

Answer. The following tabulation shows how FY 1989 funds were spent and how FY 1990 has been programmed. The FY 1990 program may change based on availability of funds in FY 1991.

Garrison Diversion Unit
Funding for Fiscal Years 1989 and 1990

(Dollars in Thousands)

Feature	FY 1989 Actual Obligations	FY 1990 Estimates
Snake Creek Pumping Plant	$ 153	$ 100
McClusky Canal	315	1,365
Sykeston Canal	175	100
Off-stream Storage	42	-0-
New Rockford Canal	6,361	10,765
James River Feeder Canal	68	-0-
James River Improvements	154	-0-
Oakes Test Area	1,359	1,100
Non-Indian Irrigation Facilities	625	197
Indian Irrigation Facilities	405	-0-
Municipal, Rural, and Industrial Water	18,431	10,038
Wetlands Trust Fund	500	500
Permanent Operating Facilities	71	-0-
Fish and Wildlife Mitigation and Enhancement	6,233	3,040
Recreation Facilities	2,109	1,159
Non-Federal Contributions	-3,720	-2,990
Other Project Costs	780	1,206
Totals	$34,061	$26,580

WETLAND TRUST FUND

Question. What is the status of the Wetland Trust Fund established by the Garrison Reformulation Act?

Answer. As of February 1990, $4 million in Federal funds have been transferred to the Trust. In 1989, the Trust purchased 480 acres for $122,000 in Ramsey county; committed $124,000 to the North Dakota Action Group for lands in the Chase Lake Project, which is to be matched by the National Fish and Wildlife Foundation; provided funds for tree planting on a 234-acre Ducks Unlimited project at Lords Lake; and contributed $21,000 to the Create-a-Wetland project in Bottineau County.

Reclamation is working with the Wetlands Trust Board and the State of North Dakota in developing a cost-share agreement to provide for non-Federal contributions. Under the Reformulation Act, Federal contributions after fiscal year 1990 would be 5 percent of the total amount appropriated in each subsequent year, subject to mandatory 10 percent non-Federal cost sharing, until the total Federal contribution is $12,000,000.

GARRISON REFORMULATION ACT

Question. The Garrison Reformulation Act prohibited the Secretary from obligating funds to construct irrigation facilities in certain service areas listed in Section 5(a)(1) until a contract or contracts providing for payment of the costs allocated to irrigation have been properly executed by a district or districts organized under State law. Has the Bureau initiated negotiations for such contracts? If not, please explain what features or processes have to be completed before such negotiations can proceed. When does the Bureau expect that such contract negotiations will begin?

Answer. Reclamation has not begun negotiations. In February 1989, Reclamation concluded that it was necessary to review and approve the interim cost allocations prior to proceeding with contract negotiations. Subsequently, the Inspector General's Report on the Garrison Diversion Unit's preliminary cost allocation has confirmed the need to revise the allocations. Completion of the updated interim cost allocation is scheduled for June 1990. This will allow Reclamation to initiate contract negotiations. It should be noted that significant financial uncertainties surround the irrigation features of the project.

QUESTIONS SUBMITTED BY THE HONORABLE TIM JOHNSON FOR THE COMMISSIONER OF RECLAMATION

MNI WICONI RURAL WATER DELIVERY PROJECT

Question. If the Bureau of Reclamation were to receive funding and direction from Congress to continue developing the Mni Wiconi Rural Water Delivery Project, how much funding would be required in fiscal year 1991?

Answer. The Bureau has the capability to use $1,500,000 in FY 1991 to continue work for the Mni Wiconi Rural Water Delivery Project.

The President's Budget for the Bureau of Reclamation was based on the Administration's support for the Bureau's priorities. While we could spend an additional $1.5 million for the Mni Wiconi Rural Water Delivery Project, any increase above the President's Budget levels for this project would need to be offset by corresponding reductions in other projects or programs so that deficit reduction targets can be met.

Question. How would this funding for Mni Wiconi be utilized?

Answer. Of the total capability, $1 million would be used for planning and investigations to complete the engineering report and NEPA compliance. The remaining $500,000 would be used for design data collection and initiation of final design activities.

Question. Will the $945,000 requested by the Bureau for the W.E.B. project in South Dakota for fiscal year 1991 be sufficient to complete the project?

Answer. Yes, I am pleased to say that construction of the project can be completed with the amount requested, barring unforeseen circumstances.

BELLE FOURCHE UNIT, PICK SLOAN MISSOURI BASIN PROGRAM

Question. Is the refurbishing of the Belle Fourche irrigation project in South Dakota on schedule?

Answer. Yes, the construction work on the Belle Fourche Unit is on schedule.

Question. What work remains to be completed on the Belle Fourche project, and what is the time schedule for this work?

Answer. Rehabilitation work to be done after FY 1990 includes completion of work on the Belle Fourche Diversion Dam: work on Inlet, North and South Canals: work on Indian Creek, Townsite, Deer Creek, Johnson, Richards, and Cole Laterals; and fish and wildlife facilities. All rehabilitation work is scheduled to be completed in FY 1994.

Question. Have staff reductions at the regional level negatively or adversely impacted the ability of the Bureau of Reclamation to offer oversight and other services to the varied projects in the Great Plains Region?

Answer. No. During fiscal year 1989 the Great Plains Region used about 932 staff years to provide oversight and other services to its varied projects. Approximately 900 staff years will be used in FY 1990. This reduction is commensurate with program plans.

QUESTIONS SUBMITTED BY THE HONORABLE LES AUCOIN FOR THE COMMISSIONER OF RECLAMATION

UMATILLA BASIN PROJECT

Question. In 1988, the Umatilla Basin Project was authorized. Last year $650,000 was appropriated for the project and a directive was included in the Committee reports accompanying the Appropriations bill directing the Secretary of the Interior to initiate construction. How is this directive being implemented in fiscal year 1990?

Answer. These funds are being used for design work and to acquire right-of-way for construction of the West Extension Irrigation District water exchange facilities.

Question. Does the Bureau intend to take steps in fiscal year 1990 to enable a construction contract to be awarded early in 1991 to keep the project on schedule?

Answer. In keeping with the Administration's policy to place the highest priority on those construction activities that are ongoing and substantially complete, no funds are requested for the Umatilla Basin Project in FY 1991. However, based on work that will be accomplished in FY 1990, it would be possible to award a contract in early FY 1991.

Question. At last year's hearing before this Committee, Commissioner Duvall called the Umatilla Basin Project a "win-win" initiative. Why were funds not budgeted for the project in the fiscal year 1991 request?

Answer. The Administration has not requested funding for the Umatilla Basin Project in fiscal year 1991 because construction on the project is not substantially underway, and in order to allow more time to resolve other concerns about the project, including possible non-structural solutions.

Question. To this point, how have the local project sponsors lived up to their cost-sharing commitments?

Answer. Local project sponsors are meeting their commitments to the comprehensive program to restore the Umatilla River anadromous fishery. They are providing both funding and technical assistance to implement the benefits of the project.

Question. What has been the dollar value of the local cost-sharing to date and how does it compare to the dollar value contributed so far and requested in 1991 by the Bureau of Reclamation?

Answer. Local interests have spent over $11 million on facilities and programs that are complementary to the Umatilla Basin Project. These include fish ladders, fish screens, and river channel improvements in connection with the purposes of this project. In addition, they have committed an estimated $13 million for other facilities, primarily a fish hatchery, currently being implemented. In fiscal year 1990, the Bureau of Reclamation received a construction appropriation of $641,000 for the project, and those funds are being used for final designs on the project's first phase. The bureau's fiscal year 1991 budget request does not include any funding for the project.

Question. What are all of the Bureau's funding needs in order to keep the project on schedule in fiscal year 1991?

Answer. The Bureau has the capability to use $7 million in fiscal year 1991 to initiate construction of the West Extension Irrigation District water exchange facilities, continue predesign activities on the remainder of the project, begin designs of the Columbia River Pumping Plant, and other minor work items.

The President's Budget for the Bureau of Reclamation was based on the Administration's support for the Bureau's priorities. While we could spend an additional $7 million for the West Extension Irrigation District, any increase above the President's Budget levels for this project would need to be offset by corresponding reductions in other projects or programs so that deficit reduction targets can be met.

Question. Please itemize the funding requirements for specific elements in 1991.

Answer. If appropriated, the $7 million mentioned above could be used as follows:

Feature	Amount
Initiate Construction of the West Extension Irrigation District Exchange Facilities	$5,820,000
Predesign Activities on Remainder of Project	230,000
Initiate design of Columbia River Pumping Facilities	500,000
Historical/Archaeological Activities	150,000
Lease/Purchase Water or Water Rights	250,000
Service Facilities (office space, etc.)	50,000
Total	$7,000,000

QUESTIONS SUBMITTED BY THE HONORABLE RON MARLENEE FOR THE COMMISSIONER OF RECLAMATION

TONGUE RIVER DAM SPILLWAY

Question. In regard to the Tongue River Dam Spillway, Montana, how much capability in FY 1991 does the Bureau have for initiating model studies for repairs for this project? What is the total cost of the study? When could it be completed?

Answer. Reclamation has $100,000 of capability in fiscal year 1991 that would be combined with $100,000 in non-Federal funds to assist the State of Montana with model studies for a labyrinth weir spillway. The total model study cost is $200,000, and the study could be completed in FY 1991.

The President's Budget for the Bureau of Reclamation was based on the Administration's support for the Bureau's priorities. While we could spend an additional $100,000 for initiating the Tongue River Dam Spillway Study, Montana, any increase above the President's Budget levels for this project would need to be offset by corresponding reductions in other projects or programs so that deficit reduction targets can be met.

UPPER MISSOURI WATER MANAGEMENT STUDY

Question. With respect to the Upper Missouri Water Management Study, how much capability in FY 1991 does the Bureau have to initiate this study? What is the total cost of the study? When could it be completed.

Answer. Reclamation's FY 1991 capability for initiating this study is $50,000, with the anticipation of matching State funding. Reclamation has responded to requests from the State of Montana in developing a workplan for the study. The total study cost is estimated to be $750,000 with 50/50 Federal-State cost sharing, and would require four years for completion.

The President's Budget for the Bureau of Reclamation was based on the Administration's support for the Bureau's priorities. While we could spend an additional $50,000 for initiating the Upper Missouri Water Management Study, any increase above the President's Budget levels for this project would need to be offset by corresponding reductions in other projects or programs so that deficit reduction targets can be met.

Mr. BEVILL. Thank you very much.

THURSDAY, MARCH 1, 1990.

DELAWARE RIVER BASIN COMMISSION

WITNESSES

IRENE B. BROOKS, U.S. COMMISSIONER

GERALD M. HANSLER, EXECUTIVE DIRECTOR

DEBRA BLOOM, BUDGET ANALYST, OFFICE OF THE SECRETARY, OFFICE OF BUDGET, DEPARTMENT OF THE INTERIOR

OPENING REMARKS

Mr. BEVILL. Now we have the Delaware River Basin Commission and Ms. Irene B. Brooks, the U.S. Commissioner. Since this is your first appearance we will make your biographical sketch a part of the record. You may proceed as you wish.

Ms. BROOKS. Okay, thank you.

STATEMENT OF MS. BROOKS

Mr. Chairman and members of the committee, I am Irene Brooks. The President appointed me as United States Commissioner of the Delaware River Basin Commission on September 7th. I have submitted a biographical sketch for your information.

It is a pleasure to make my first appearance before you in support of two appropriation items totaling $681,000. These items consist of $224,000 for salaries and expenses for the operation of the Office of the United States Commissioner and $457,000 for the Federal contribution to the Delaware River Basin Commission to implement the Compact. The authority and details relating to these requests appear in the justifications statement previously submitted to the committee.

It is important to note that the amount of the Federal contribution being sought for fiscal year 1991 will bring parity to the way the Federal Government supports both the Susquehanna and Delaware Commissions; that is, provide each with an equal partnership share of the annual operating budget, exclusive of special projects and external revenues.

Mr. Chairman, accompanying me today is Debra Bloom, the Interior Department budget analyst who assists my office on budget matters. Also accompanying me is Gerald Hansler, the Commission's Executive Director. We will try to respond to any questions you may have.

[The biographical sketch of Ms. Brooks follows:]

Irene B. Brooks

Office: County Commissioners' Office
High and Market Streets
West Chester, PA 19380
(215) 344-6209

Home: Maple Hill Farm
Five Point Road
Coatesville, RD3, PA 19320
(215) 857-5065

ELECTED OFFICES:

Chester County Commissioner, 1986 to present; Chairman, 1987, 1988 *Appointed by unanimous vote of the Court of Common Pleas to serve unexpired term; elected to four-year term in 1987. Full-time administration of County government; Chairman of the Chester County Prison and County Retirement Boards.*

Prothonotary of Chester County, 1984-1986. *Elected to a four-year term. Responsible for comprehensive reorganization of Prothonotary's Office and development of long-range plan. Revised manual record keeping, laying the groundwork for automation of court records.*

PUBLIC SERVICE:

Chester County Open Space and Environmental Task Force, Founder and Chairman, 1989 to present. *Develop strategic plan for open space preservation and environmental protection for Chester County.*

Chester County Highway Needs Task Force, Founder and Member, 1988 to present. *Active in determining the highway priorities throughout Chester County. Provided testimony to Pennsylvania Department of Transportation in support of highway funding.*

Strategic Planning Policy Committee for SEPTA, Member, 1987. *Provided policy direction for definitive study of public transportation system, including infrastructure improvements, funding alternatives and strategic planning for future growth.*

Greater Philadelphia Economic Development Coalition, Member, Board of Directors, 1987 to present.

Pennsylvania State Association of County Commissioners, Member, Human Services Subcommittee, 1987 to present.

Delaware Valley Regional Planning Commission, Member, 1987 to present

Chester County Local Emergency Planning Commission, Chairman, 1987 to present. *Chair this government and citizen committee that advises on emergency preparedness and hazardous material response.*

Chester County Partnership for Economic Development, Member, 1987 to present. *Promote the coordinated economic growth through this local leadership committee.*

(Continued)

Irene B. Brooks
Page Two

PUBLIC SERVICE (Continued)

Chester County Private Industry Council, Member, 1987 to present. *This local advisory committee administers the federal funds authorized by the Job Training Partnership Act.*

West Chester Regional Planning Commission, Member, 1977 to 1986; Chairman, 1984 to 1986. *Notable accomplishments include a comprehensive open space inventory study of the eight municipalities forming the West Chester Planning Region, the first such study in the region.*

East Bradford Township Planning Commission, Member, 1976 to 1986; Chairman, 1979 to 1986. *Played a major role in the completion of a comprehensive plan for East Bradford Township. Chaired commission during a period of intense development and growth.*

PUBLIC SERVICE AWARD:

"Elected Official of the Year", 1988, presented by the Pennsylvania Planning Association, a chapter of the American Planning Association

COMMUNITY SERVICE:

United Way of Chester County, Member, Board of Directors, 1981 to 1984 and 1986 to present.

Visiting Nurse Association of Southern Chester County, Member, Board of Directors, 1976 to 1977.

SERVICE TO THE PARTY:

East Bradford Township, Republican Committeewoman, 1974 to 1986
Chester County Republican Committee, Member, Executive Committee, 1976 to 1986
Area 16 Republican Committee, Chairman, 1976 to 1986
Standing County Campaign Committee, Chairman, 1985 to 1986
Judicial Selection Committee, Member, 1985

CAMPAIGN RESPONSIBILITIES:

Bush/Quayle Campaign, 1988, County Co-Chairman
Bill Scranton for Governor Committee, 1986, County Chairman
Thornburgh/Scranton Campaign Committee, 1982, County Publicity Chairman
Republican County Campaign, 1981, Chairman
Bush for President Campaign Committee, 1980, County Publicity Chairman
Thornburgh/Scranton Campaign Committee, 1978, County Publicity Chairman

MEMBERSHIPS:

Chester County Republican Committee, Chairman's Club
Chester County Republican Committee, Regulars
Upper Main Line Council of Republican Women
Valley Forge Council of Republican Women
Southern Chester County Republican Women's Council
Pennsylvania Republican Women

Mr. **Bevill**. We will insert the justification material for the Delaware River Basin Commission in the record at this point, without objection.

[The information follows:]

DELAWARE RIVER BASIN COMMISSION
FY 1991 BUDGET JUSTIFICATION

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DELAWARE RIVER BASIN COMMISSION
SALARIES AND EXPENSES
FY 1991 BUDGET

JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: Federal Representation

The Delaware River Basin Commission was created by Compact between the Delaware River Basin States (Delaware, New Jersey, New York and the Commonwealth of Pennsylvania) and the Federal Government (P. L. 87-328) for the joint management of the Basin's water and related resources.

The Compact directs the Commission to develop and implement comprehensive plans, policies and programs related to the water resources of the Delaware Basin; to adopt and promote uniform and coordinated policies for water conservation, utilization and development in the Basin; and to encourage the planning, development and financing of water resources projects according to such plans and policies.

The Commission's membership consists of the Governors of the signatory States and a Federal Member appointed by the President to represent all Federal interests. The Federal Member historically has been the Secretary of the Interior. Each Governor and the President are directed to appoint a Commissioner to serve as an alternate to the Member, and each has identical powers of the Member, including the power to vote in his absence.

It is the responsibility of the Federal Member and the United States Commissioner to protect the national interests in the affairs and programs of the Commission. The Member and the Commissioner must work closely with all interested Federal departments and agencies relative to all actions by the Commission relating to the comprehensive plan and the advisability of individual water policies, programs, and projects which the Commission may either propose or consider. They serve as coordinators between the Federal agencies and the Commission to eliminate duplication and foster complementary efforts.

An appropriation of $224,000 for FY 1991 is required to finance the salaries and expenses necessary to enable the United States Commissioner to represent the interests of the Federal Government in the workings of the Commission.

DELAWARE RIVER BASIN COMMISSION
DISTRIBUTION OF AUTHORITY BY ACCOUNT

Appropriation: _ Salaries and Expenses	1989 Actual	1990 Enacted to Date	1990 Adjusted Approp 1/	1991 Estimate
Appropriation	$88,000	$214,000	$211,000	$224,000

SUMMARY OF INCREASES/DECREASES, 1991

Federal Representation:	1991 Base	Changes	1991 Estimate
Budget Estimate, 1991	$211,000	+$13,000	$224,000

ANALYSIS BY ACTIVITY

(Direct Appropriations)

Activity	FY 1989 Amount Available	FY 1990 Enacted to Date	1990 Adjusted Approp 1/	1991 Estimate	Increase (+) or Decrease (-) 1991 Compared with 1990
Federal Representation	$88,000	$214,000	$211,000	$224,000	+ $13,000
Unobligated balance lapsing	$117,000	--	--	--	--
Total	$205,000	$214,000	$211,000	$224,000	+ $13,000

JUSTIFICATION

Federal representation: Fiscal Year 1990, $211,000; Fiscal Year 1991, $224,000; increase $13,000. The increase consists of:

Increase (+) or Decrease (-)				
Amount	Positions	Total Program	Total Positions	Explanation
+$13,000	--	$224,000	2	To continue to provide for the cost of operation of the Commissioner's office.

1/ Adjusted for reduction pursuant to P.L. 99-177.

DELAWARE RIVER BASIN COMMISSION
SALARIES AND EXPENSES

For expenses necessary to carry out the functions of the United States member of the Delaware River Basin Commission, as authorized by law (75 Stat. 716), [$214,000] $224,000. (Energy and Water Development Appropriations Act, 1990.)

Program and Financing (in thousands of dollars)

Identification code 46-0100-0-1-301		1989 Actual	1990 Estimate	1991 Estimate
	Program by activities:			
10.00	Total obligations	88	211	224
	Financing:			
25.00	Unobligated balance lapsing	117	0	0
39.00	Budget authority	205	211	224
	Budget authority:			
40.00	Appropriation	205	214	224
40.00	Reduction pursuant to P.L. 99-177	0	(3)	0
43.00	Appropriation (adjusted)	205	211	224
	Relation of obligations to outlays:			
71.00	Obligations incurred, net	88	211	224
72.40	Obligated balance, start of year	19	12	15
74.40	Obligated balance, end of year	(12)	(15)	(15)
77.00	Adjustments in expired accounts	1	0	0
90.00	Outlays	96	208	224

DELAWARE RIVER BASIN COMMISSION
SALARIES AND EXPENSES

Object Classification (in thousands of dollars)

Identification code 46-0100-0-1-301		1989 Actual	1990 Estimate	1991 Estimate
	Personnel compensation:			
11.1	Full-time permanent................	51	126	136
11.3	Other than full-time permanent.....	0	3	3
11.9	Total personnel compensation.....	51	129	139
12.1	Personnel benefits: Civilian.......	7	29	29
21.0	Travel and transportation of persons..........................	2	9	9
23.1	Rental payments to GSA.............	14	15	14
23.3	Communications, utilities, and miscellaneous charges............	1	4	5
24.0	Printing and reproduction..........	0	3	4
25.0	Other services.....................	12	19	20
26.0	Supplies and materials.............	1	3	4
99.9	Total obligations..............	88	211	224

DELAWARE RIVER BASIN COMMISSION
SALARIES AND EXPENSES

Personnel Summary

Identification code 46-0100-0-1-301	1989 Actual	1990 Estimate	1991 Estimate
Total number of full-time permanent positions.................	1	2	2
Total compensable workyears:			
Full-time equivalent employment.....	1	2	2
Average ES salary......................	--	$78,200	$78,200
Average GS salary......................	13.9	13.9	13.10
Average GS salary......................	$52,089	$53,961	$55,381

DELAWARE RIVER BASIN COMMISSION
SALARIES AND EXPENSES

Detail of Personnel Summary

Identification code 46-0100-0-1-301	1989 Actual	1990 Estimate	1991 Estimate
Special positions at rates equal to or in excess of $78,200:			
U.S. Commissioner....................1/	1	1	1
GS/GM-13..............................	1	1	1
Total permanent positions...........	2	2	2
Unfilled positions, end of year.......	--	--	--
Total permanent employment, end of year..........................	2	2	2

1/ U.S. Commissioner was on the payroll for the last three weeks of FY 89 only. Figures are based on year-end levels.

DELAWARE RIVER BASIN COMMISSION
CONTRIBUTION TO DELAWARE RIVER BASIN COMMISSION
FY 1991 BUDGET

JUSTIFICATION OF PROGRAM AND PERFORMANCE

The Delaware River Basin Commission was created by Compact (P.L. 87-328) among the States of Delaware, New Jersey and New York, the Commonwealth of Pennsylvania and the Federal Government. The purpose of the Compact is to enable the signatory parties to participate jointly in the conservation, utilization, development and control of water and related resources of the Delaware River Basin.

Under the terms of the Compact, the Commission is directed to develop and implement comprehensive plans, policies and programs relating to the water resources of the Basin; to adopt and promote uniform and coordinated policies for water conservation, control and development in the Basin; and to encourage the planning, development and financing of water resources projects according to such plans and policies.

The principal members of the Commission are the Governors of the signatory States, ex officio, and a Federal member appointed by the President of the United States. The Compact also provides for the appointment of a Commissioner (alternate member) by each Governor and the President who has the identical powers of the member, including the power to vote in his absence.

Authority for the United States' participation in the current expense budget of the Commission is provided under Section 13.3 of the Delaware River Basin Compact (P.L. 87-328), approved September 27, 1961).

The fiscal year 1991 estimate requests $457,000 to cover the United States' share of the $2,689,900 current expense budget of the Delaware River Basin Commission. This is an $117,000 increase over the fiscal year 1990 appropriation as reduced by Gramm-Rudman-Hollings. This increase is requested as the final step toward providing parity in Federal funding of the Delaware and Susquehanna River Basin Commissions. For many years, the Federal contribution to the Susquehanna River Basin Commission has been an equal partnership share. With four partners involved in the Susquehanna Commission, this has meant a 25 percent Federal share of the Commission's operating budget after excluding special projects and external revenues. Applying this same principle to the Delaware Commission with its five partners, the Federal contribution would be 20 percent, and this would translate into a fiscal year 1991 Federal contribution of $457,000.

After many years, the Commission agreed to a funding formula under which Pennsylvania and New Jersey each would provide 25 percent; the Federal Government, 20 percent; New York, 17.5 percent; and Delaware, 12.5 percent. The States are moving toward meeting this formula in fiscal year 1991, with other signatory funding consisting of $633,800 from Pennsylvania; $597,200 from New Jersey; $342,600 from New York, and $253,500 from Delaware.

The fiscal year 1991 budget for the Commission totals $2,689,900, an increase of $154,100 over fiscal year 1990. The major changes by accounting category stem from cost-of-living pay adjustments; higher non-discretionary costs of fringe benefits; increased costs of supplies, equipment maintenance and replacement; and increased costs associated with keeping the public informed of Commission meetings, hearings, and decisions. These higher costs were somewhat offset by reduced costs in contractural services and rental fees for data processing equipment. The proposed level of funding would support a staff of 40.

The Delaware River Basin Compact mandates activities and provides discretionary authority for a broad range of water resources planning, design, construction and operating functions. In fiscal year 1991, the mandated activities will be continued, and essential discretionary planning and operating functions will be performed.

Mandated Activities:

The Compact requires (1) the preparation and maintenance of an up-to-date Comprehensive Plan, (2) the issuance of an annual Water Resources Program, (3) the review of projects having a substantial effect on the water resources of the Basin, (4) the administration of uniform and coordinated standards and procedures, and (5) the publication of an annual report.

1. Comprehensive Plan: In fiscal year 1991, the Comprehensive Plan will continue to be revised to include Commission decisions flowing from the Level B Study and the "Good Faith" negotiations. This activity will require public hearings before the Commission on a series of issues. Intergovernmental coordination efforts with respect to matters impacting the Basin will continue.

2. Water Resources Program: A Water Resources Program will be prepared, subjected to public hearing, modified as appropriate, approved by the Commission and published. The Water Resources Program will include a systematic presentation of (1) the quantity and quality of water resources needs, (2) the projects* required to satisfy these needs and (3) a separate statement of the projects proposed to be undertaken by the Commission during the ensuing six years.

3. Project Review: Water, or water-related, projects proposed for implementation by any person, corporation or government authority will be reviewed for conformance with the Comprehensive Plan. These reviews, conducted in accordance with the duly issued Rules of Practice and Procedure, will result in recommended courses of action by the Commission.

4. Uniform Standards and Procedures and Their Enforcement: Uniform standards and procedures will be established for the evaluation, determination of benefits and cost allocations of projects affecting the Basin and for the determination of project priorities pursuant to the requirements of the Comprehensive Plan; uniform and coordinated policies for water conservation, use, and management will be promoted. Appropriate enforcement action(s) will be taken where necessary to protect the provisions of the Comprehensive Plan and any standards, regulations, or docket decisions duly promulgated by the Commission.

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* "Project" is defined by the Compact as "any work, service or activity" as well as water-related facilities or additions to such facilities.

5. Annual Report: A report on the activities and finances of the Commission for the calendar year will be prepared, published and distributed to the legislative bodies of the signatory parties and the public.

Planning Activities:

Planning programs will be underway in fiscal year 1991 relating to (1) ground water, (2) water demands and conservation, (3) flood loss reduction, (4) pollution control, (5) fish and recreation and (6) electric power.

1. Ground Water: The basinwide ground water investigation, initiated in 1979, was completed in fiscal year 1983. Study recommendations regarding operational concepts will continue to be reviewed for inclusion within the Comprehensive Plan following public hearings during fiscal year 1991. Well registration and source metering by the Basin states will be continued, as will the Basin data management program.

2. Water Demands and Conservation: The basic elements of water demand projections, i.e., population, unit water uses, economic base, etc., will be compiled and continuously updated utilizing the most recent census and economic data. Inventories of water withdrawals and depletive use will be updated annually with information provided through the Commission's well registration (Resolution No. 85-19) and source metering (Resolutions No. 86-12 and 86-13) programs.

The Commission will intensify staff efforts to ensure compliance with its numerous water conservation regulations. The Commission has continuing long-term policies to reduce water use throughout the Basin through conservation efforts and to require maximum feasible efficiency in the use of water by new and existing water users (Resolution No. 76-17, Water Code 2.1.1, 2.1.2, 2.1.3). Resolution No. 81-9 specifies water conservation policies applicable to all new water supply projects reviewable by the Commission under Section 3.8 of the Compact. Resolution No. 87-6 requires purveyors that distribute in excess of 100,000 gpd during any 30-day period to undertake leak detection and repair. Resolution No. 87-7 requires those purveyors to install, or require to be installed water meters at all service connections. Resolution No. 88-2 (Revised) sets water conservation performance standards for plumbing fixtures and fittings. Resolution No. 88-2 (Revised) requires that low-consumption water closets (maximum 1.6 gallons/flush) be installed in new construction and renovation in the Basin effective January 1, 1991. The Commission will sponsor technology transfer sessions with major industrial and commercial groups to promote water conservation in those sectors.

3. Flood Loss Reduction: The nonstructural flood loss reduction program initiated during 1988 will continue during fiscal year 1991. The Commission may be asked by the Corps of Engineers to participate in a project to provide Flood Stage Forecast Maps for a 70-mile reach of the Delaware River between Burlington and Belvidere, New Jersey. It is also expected that the Commission will assist in an advisory capacity the Corps, New Jersey Department of Environmental Protection and Pennsylvania Emergency Management Agency with the installation of Automated Flood Warning Systems for the Lehigh River and Assunpink Creek. Additional proposed work includes assessment of the Local Flash Flood Warning Programs for the 39 Delaware Basin Counties; investigation of installing an additional NOAA weather radio transmitter in the Upper Delaware region; and provision of flood forecast preparedness information to the public.

4. Pollution Control: The multi-faceted pollution control program, funded by appropriations from the states, grants from the Federal Government, and payments for services to a public utility, will continue in fiscal year 1991.

1. Allocation of Estuary Waste Assimilative Capacity. Based on the completed use attainability analysis, reallocation of the assimilative capacity of Zones 2 through 5 of the Delaware River estuary will be continued during FY 1991 in close assosciation with the U.S. Environmental Protection Agency and the States of Delaware, New Jersey, and Pennsylvania. This activity will require mathematical model computer runs, notices of preliminary allocations, hearings on objections before hearing panels, reports to the Commission by the panels, and Commission decisions. This will be a major pollution control activity in fiscal year 1990 and will continue in fiscal year 1991.

2. Water Quality Data Collection. The Commission will compile and make available to interested parties data on the quality of Basin surface and ground waters. The Commission will act as the cooperating agent with the U.S. Geological Survey for some monitors in the estuary. The basic monitoring program of the estuary will be evaluated in fiscal year 1990 and revisions implemented in late fiscal years 1990 and 1991. The annual summer monitoring program in the upper Basin, including the Delaware Water Gap National Recreation Area and the Upper Delaware Scenic and Recreational River, will be continued.

3. Water Quality Standards. The Commission will continue to develop and adopt interstate water quality standards that are consistent with the laws of the land and the water management plan of the Basin.

The implementation of the recommendations of the two-year monitoring program to evaluate the impacts of seasonal disinfection will be continued in fiscal years 1991.

The Commission, working with [illegible] National Park Service has undertaken a study of the Middle Delaware Scenic and Recreational River to determine if existing standards, programs and anti-degradation policies are adequate to protect existing and future water quality. Management recommendations will be developed in fiscal year 1990, and implementation will continue in fiscal year 1991.

The management recommendations in the Middle Delaware will be evaluated for application in the Upper Delaware in fiscal year 1991.

The Commission will continue the development of a toxics management strategy for the Delaware Estuary. Modeling will be conducted to determine near field and tidal impacts. Development of point source control stategies will be initiated.

4. National Estuary Program. The Commission, along with the Basin States, EPA Region II, III and headquarters, the Army Corps of Engineers and NOAA will continue in the five-year management conference on the Delaware Estuary. During fiscal year 1991 the following activities will be underway or completed by the management conference:

a. Final ranking and identification of priority problems.

b. Development of a list of priority activities and implementation schedules for the "action now" agenda.

c. Continuation of status and trends evaluations of the scientific characterization.

d. The Commission staff will continue to serve on the Management Committee, the Scientific and Technical Advisory Committee and the Program Work Group. Support will be given to the Citizens Advisory Committee, the Local Governmental Committee and the Financial Committee.

5. Coordination. The interstate aspects of state water quality programs will be coordinated by the Commission. The reports required by P.L. 92-500, Section 305(b) will be prepared by the Commission for the interstate Delaware River. An interim update report using the water body system will be prepared in fiscal year 1991.

5. Fish and Recreation: The Commission will continue to assist the U.S. National Park Service implementing the land management plan associated with the Upper Delaware Scenic and Recreation River. This activity will be in cooperation with the States of New York and Pennsylvania, and the counties bordering the river.

The Commission will review projects subject to its jurisdiction which would impact upon fish and recreation resources within its comprehensive plan.

Liaison and coordination with fish managment agencies will continue with respect to issues pending before the Commission.

6. Electric Power: Contact will be maintained with the electric power companies to keep abreast of water demands related to the industry, and of modifications to the Master Siting Study recognizing that most of the new electric-generating facilities are being planned by "private" (nonutility) companies.

Operation Activities:

The water sales program, adopted by the Commission pursuant to Resolution Nos. 72-4 and 74-6, will be administered. This program involves execution of contracts with major water users and the assessment of charges against minor water users, under the self-invoicing arrangement. The legal entitlement program as it relates to municipal and industrial withdrawals of surface water was completed in fiscal year 1979. In fiscal year 1991, new water sales contracts will be negotiated, current contracts will be monitored and self-invoicing procedures spot-checked. Field checking of water users' facilities will be carried out, as staff time permits. The water sales payments have increased with additional users and loss of entitlements due to sale of companies. These increased payments are sufficient to cover the additional repayment required for future water use at Blue Marsh Reservoir.

As an equitable means of financing future water supply storage in Francis E. Walter project, the DRBC has recommended that Congress modify Section 15.1 (b) of the Compact and eliminate exemption from charges for pre-Compact users. If enacted by Congress, the Commission will hold public hearings and

and revise its existing water charging program to apply to all users. Implementation of the new charging program would start in fiscal year 1990 and continue into fiscal year 1991.

Computer model simulations of salinity and reservoir operations will continue to be made to assist the Flow Management Technical Advisory Committee in its evaluation of alternate reservoir operation plans during drought conditions. With the possibility of F. E. Walter Reservoir being modified, revision of the current basinwide and lower basin drought operating plans will be necessary to include the additional water storage that will be available.

Salinity modeling will also continue to be necessary in order to predict the effect on chlorides in the Estuary due to increased depletive water use and sea level rise that is expected to occur from the "Greenhouse" effect. To this end, assistance will be provided to the U. S. Geological Survey which is the sponsor of a climate study to investigate the effects of climate change on the hydrology in the Delaware River Basin.

As part of the program to monitor depletive use in the Basin, a new data-base system has been installed on the Commission computer to store continuing collection of water use data from surface and ground water users. This comprehensive database would also provide the basis for a water charging system to pay for the financing of the F. E. Walter Reservoir modification.

Ground Water Protected Area:

Although not a part of the regular operating budget shared by all the signatory parties, the Commission will administer under contractual arrangements with the State of Pennsylvania a continuing program which involves special regulations regarding the use of ground water in portions of Berks, Bucks, Chester, Lehigh and Montgomery Counties, Pennsylvania. These special regulations apply to the Commission's designated "Southeastern Pennsylvania Ground Water Protected Area." In addition to meeting all current requirements of the Comprehensive Plan and Rules of Practice and Procedures, applicants seeking permission to withdraw more than 10,000 gallons per day will be required to demonstrate that the requested use would not (1) render supplies in the underground Basin unreliable, (2) cause long-term progressive lowering of water levels, (3) cause water quality degradation, (4) result in permanent loss of storage capacity nor (5) substantially impact perennial streams. Such applicants will be required to take a number of conservation measures and file a drought emergency plan with the Commission. All present users of more than 10,000 gallons per day will be required to register their wells with the Commission in order to attain the protection by the declaration.

DELAWARE RIVER BASIN COMMISSION
FY 1991 OPERATING BUDGET

Revenues:	FY 1989 Budget	FY 1990 Budget	FY 1991 Budget	Increase (Decrease)
Signatory Parties:				
Delaware	$203,600	$226,900	$253,500	$26,600
New Jersey	$550,000	$613,000	$597,200	($15,800)
New York	$269,600	$277,300	$342,600	$65,300
Pennsylvania	$631,900	$704,200	$633,800	($70,400)
Federal Government	$263,000	$340,000 1/	$457,000	$117,000
Micellaneous:				
Other	135,700	134,400	165,800	$31,400
EPA Water Quality Grant	240,000	240,000	240,000	$0
TOTAL ALL SOURCES	$2,293,800	$2,535,800	$2,689,900	$154,100

xpenditure:	FY 1989 Budget	FY 1990 Budget	FY 1991 Budget	Increase (Decrease)
Personal Services	$1,422,500	$1,545,500	$1,633,400	$87,900
Special & Contractual Services	173,300	188,100	171,000	($17,100)
Services Other Than Personal	46,000	60,800	64,900	$4,100
Supplies & Materials	48,500	51,100	59,600	$8,500
Space	124,000	130,000	130,000	$0
Communications	63,000	71,500	71,500	$0
Travel	30,000	31,000	32,000	$1,000
Maintenance & Replacement	66,000	77,000	93,500	$16,500
Equipment Purchase or Rental	30,500	33,500	31,000	($2,500)
Grants, Fringe Benefits & Other	290,000	347,300	403,000	$55,700
TOTAL EXPENDITURES	$2,293,800	$2,535,800	$2,689,900	$154,100

1/ Reflects a $5,000 decrease from the officially approved DRBC budget to reflect the reduction pursuant to P.L. 99-177 from the FY 1990 Energy and Water Appropriation Act amount.

DELAWARE RIVER BASIN COMMISSION
CONTRIBUTION TO DELAWARE RIVER BASIN COMMISSION

COMPARISON OF FUNDING

Appropriation/Activity	Budget Authority 1989 Actual	 1990 Enacted to Date	 1990 Adjusted Approp 1/	 1991 Estimate
Contribution to Delaware River Basin Commission......................	$263,000	$345,000	$340,000	$457,000

SUMMARY OF INCREASES/DECREASES FOR 1991 BY ACTIVITY

	1991 Base	1991 Estimate	Increase (+) or Decrease (-)
Activity: Contribution to the Commission.................	$340,000	$457,000	+117,000

To provide for the 1991 Federal share of the annual expenses of the Delaware River Basin Commission.

JUSTIFICATION

Contribution to the Commission: Fiscal Year 1990, $340,000; Fiscal Year 1991, $457,000; increase of $117,000.

Increase (+) or Decrease (-) Amount	 Positions	Total Program	Total Positions	Explanation
+$117,000	--	$457,000	--	Federal contribution to 1991 current expense budget of the Delaware River Basin Commission.

1/ Adjusted for reduction pursuant to P.L. 99-177.

DELAWARE RIVER BASIN COMMISSION
CONTRIBUTION TO DELAWARE RIVER BASIN COMMISSION

For payment of the United States share of the current expenses of the Delaware River Basin Commission, as authorized by law (75 Stat. 706, 707), [$345,000] $457,000. (Energy and Water Development Appropriations Act, 1990.)

Program and Financing (in thousands of dollars)

Identification code 46-0102-0-1-301		1989 Actual	1990 Estimate	1991 Estimate
	Program by activities:			
10.00	Contribution to the Commission (object class 41.0)	263	340	457
	Financing:			
39.00	**Budget authority**	263	340	457
	Budget authority:			
40.00	Appropriation	263	345	457
40.00	Reduction pursuant to P.L. 99-177	0	(5)	0
43.00	Appropriation (Adjusted)	263	340	457
	Relation of obligations to outlays:			
71.00	Obligations incurred, net	263	340	457
90.00	Outlays	263	340	457

DUTIES OF U.S. COMMISSIONER

Mr. **Bevill**. Would you describe for the committee the duties of the United States Commissioner?

Ms. **Brooks**. I seek to coordinate the positions of Federal agencies, such as the Corps of Engineers, Fish and Wildlife Service, the National Park Service, and the Environmental Protection Agency, to come up with a unified position on projects that the Commission must approve pursuant to the Compact. I represent the Federal interests in all of those projects. Also, as one of five members, I participate in decisions relating to Commission policies, programs, priorities and budgets.

Mr. **Bevill**. All right. And if you wish to expand on that, you can do that in the record.

Ms. **Brooks**. Okay. Thank you.

Mr. **Bevill**. Mr. Hansler, do you have a prepared statement to make?

Mr. **Hansler**. Yes. I have a short statement which has been sent down and made available.

Mr. **Bevill**. We will put that in the record, and you may summarize it if you want to.

[The prepared statement of Mr. Hansler follows:]

OCTOBER 27 1961

DELAWARE RIVER BASIN COMMISSION
P O BOX 7360
WEST TRENTON NEW JERSEY 08628

(609) 883-9500

GERALD M. HANSLER
EXECUTIVE DIRECTOR

HEADQUARTERS LOCATION
25 STATE POLICE DRIVE
WEST TRENTON, N. J.

Mr. Chairman and Members of the Committee:

Thank you for this opportunity to present the Delaware River Basin Commission's FY 1991 Budget. The budget that is before you today has been a subject of a public hearing without objections and has received the unanimous affirmative vote of the appointed Commissioners from all signatory parties to the Delaware River Basin Compact.

Our FY 1991 Budget calls for a Federal contribution of $457,000. This represents an increase of $112,000 over the FY 1990 funding. As outlined in the Justification of Program and Performance which has been submitted to the committee by the Office of the United States Commissioner to the Delaware River Basin Commission, the Federal contribution represents 20 percent of the required signatory party funding to balance the Commission's FY 1991 operating budget.

As noted in my testimony, February 22, 1989, efforts were undertaken in FY 1989 to establish an equitable funding formula among the signatory parties. I am pleased to advise you today that the budget document that has been presented represents the implementation of this funding formula which has been unanimously approved by the signatory parties.

The Delaware River Basin Commission also supports the Army Corps of Engineers FY 1991 budget requests for projects within the Delaware River Basin:

-	Chesapeake and Delaware Canal Baltimore Harbor Connecting Channel Deepening (N)	Survey	$550,000
-	Delaware Bay Coastline (SP)	Survey	355,000
-	Delaware River, Philadelphia, PA to Trenton, N.J. Tioga Marine Terminal (N)	Engineering/Design	100,000
-	Delaware River Comprehensive Navigation Study (N)	Survey	290,000
-	Salem River, N.J. (N)	Engineering/Design	150,000
-	Operation and Maintenance Cost for Corps Projects within the Delaware River Basin.		
-	Port Jervis Area Study as specified in the detailed project report dated April 1986.		
-	Funding of Section 22 Planning Program (Water Resources Development Act of 1974 as amended) to meet the request of Compact members.		

The DRBC also requests that FY 1991 construction dollars be appropriated to the Corps of Engineers for continuation of the Francis E. Walter Project previously funded for construction in FY ´87, ´88 and ´89. Senator Bill Bradley and Congressman Paul Kanjorski have introduced bills which deal with an amended authorization to that F.E. Walter Project and modification of Section 15.1(b) of our DRBC Compact. If an appropriate compromise bill is enacted during this session of Congress, the DRBC would be in a position to sign the required LCA with the Corps.

I would like to take this opportunity to thank the members of this committee for their continued support and I would be pleased to answer any questions now or later in written form.

Statement by Gerald M. Hansler, Executive Director, Delaware River Basin Commission, before Subcommittee on Energy and Water Development, Committee on Appropriations, March 1, 1990.

COMMISSION SUPPORT OF BUDGET

Mr. **Hansler**. We are glad that for the first time since I have been with the Commission, all five Commissioners representing Governors' offices and the Secretary of the Interior voted unanimously on the budget in December. Last year, it was June. So, things seem to be working quite well.

Mr. **Bevill**. It is commendable when five of you can agree on anything. There is a County Commission with five Commissioners in my State. I always make the point that it is outside of my district, of course. This County Commission of five learned the probate judge was in the hospital and they passed a resolution wishing him a speedy recovery. But they put a P.S. on it that the resolution passed by a vote of three to two.

So, any time five people can agree on anything, I think it is commendable. I agree with you.

FRANCIS E. WALTER RESERVOIR PROJECT

Mr. **Hansler**. One other thing related to appropriations in Congress. We have been trying to build a water supply storage project called F. E. Walter. There exists a huge dam there at this time. It was long ago authorized by Congress to be expanded to include water supply storage.

The Corps had construction funds in for the project in fiscal years 1987, 1988, 1989. Your committee had it in for fiscal year 1990, last year. The Senate did not. In your discussions and in conference meetings, it was dropped out, because we were unable to sign a local cooperation agreement with the Corps.

We were unable to sign that agreement because Congress had not moved on a bill to modify the Federal reservations of our Compact, which is necessary to give us the ability to charge water users to the extent they benefit from our water storage projects.

However, to keep the project alive insofar as construction funds, the Commission last fall appropriated $100,000 to enter into a contract with the Corps to keep their work going, cultural survey and study. So, we haven't given up on the project. It is still very important.

STATUS OF DELAWARE COMPACT AMENDMENT

Congressman Kanjorski introduced a bill dealing with the modification of the Section 15.1(b) of our Compact. We felt it would tie our hands the way the bill read. We had discussions with Congressman Kanjorski.

Senator Bill Bradley introduced a bill in November which is preferable and would get the job done for us. Senator Bradley has written Senator Biden to hold hearings on that bill. Hopefully there will be activity in Congress which will modify our Compact, will reauthorize some elements of F. E. Walter project, and we could move ahead this year on construction.

Mr. **Bevill**. Very good.

STATUS OF SIGNATORY FUNDING

Mr. Hansler, are all the Compact members current in their contributions to the Commission's operating expenses?

Mr. **Hansler**. Yes, they are.

Mr. **Bevill**. Very good.

The Chair recognizes Mr. Myers.

Mr. **Myers**. Well, thank you, Mr. Chairman.

I have no questions, but Commissioner Brooks, we welcome you. We wish you well.

Ms. **Brooks**. Thank you very much. I am also the first woman U.S. Commissioner.

Mr. **Myers**. Well, congratulations. Mrs. Boggs wanted to ask you that question. You spoiled it.

Mr. **Bevill**. The Chair recognizes Mrs. Boggs.

Mrs. **Boggs**. Thank you very much, Mr. Chairman.

I do welcome you, Ms. Brooks, and all of you. It is a nice combination of people in front of us, isn't it? Two to one.

Mr. **Myers**. Just like home.

Mrs. **Boggs**. Obviously looking at your biography, I can understand why you are in the position you hold. You have had such remarkable experience in getting many Commissioners together, and many council members, government agencies, and volunteer agencies, together, which is sometimes even harder than public agencies.

So I commend you for being there. I am very happy that you are being assisted so valiantly by the two people, Mr. Hansler and Ms. Bloom. Thank you very much.

Mr. **Bevill**. Any other questions? I have other questions that you can answer for the record. Thank you.

[The information follows:]

Term of United States Commissioner

MR. BEVILL. Ms. Brooks, the President appointed you as Commissioner on the Delaware River Basin Commission on September 7. How long is your appointment for?

MS. BROOKS. Mr. Bevill, my appointment does not have a fixed term. I serve at the pleasure of the President.

Level B and Good Faith Recommendations

MR. BEVILL. Please summarize for the record the decisions resulting from the Level B Study and the "Good Faith" negotiations.

MR. HANSLER. The Level B Study determined certain changes were needed in the Comprehensive Plan of the Delaware River Basin Commission. The recommendations of "Good Faith" incorporated some of those changes. The 14 recommendations of "Good Faith" have been implemented except for those relating to moving ahead with the plans and financing of Prompton Reservoir modification, the establishment of a depletive water use budget, and the recommendation for a field demonstration of glacial alluvium pumping to supplement flow augmentation. The latter has been dropped from consideration for environmental reasons.

Water Conservation

MR. BEVILL. The justification material states that the Commission will intensify staff efforts to ensure compliance with water conservation regulations. Please summarize the efforts you plan to undertake to ensure compliance. Have your water conservation regulations been successful in reducing water use? Are leaks in water supply systems a major problem in the Delaware River Basin?

MR. HANSLER. The Commission has adopted numerous water conservation regulations. These include requirements for: source metering (Resolution No. 86-12); service metering (Resolution 87-7); leak detection and repair (Resolution 87-6); and water conservation performance standards for plumbing fixtures and fittings (Resolution No. 88-2 Revised).

In 1989, the Commission intensified its efforts to ensure compliance with its source metering regulation. Earlier in the year, there were about 40 users in violation of the regulation in the Pennsylvania portion of the Basin. The Commission pursued enforcement via the threat of imposition of penalties pursuant to Section 14.17 of the Compact. By the end of the year, all of the water users except one had either complied or agreed to comply by early 1990.

If necessary, the Commission will pursue similar enforcement actions with violators of the Commission's other regulations. It appears that this may be necessary to ensure compliance with the leak detection and repair regulation (Resolution No. 87-6). About 20 water companies have not yet submitted leak detection and repair plans for State review and approval. This is a requirement of the regulation.

The water conservation regulations cited above have been in force for only a couple of years; it's too soon to gauge their success in reducing water use. However, water companies that have implemented leak detection programs in response to Commission requirements have reported that the programs have been successful; many leaks have been identified and corrected. We project savings of about 42 million gallons a day of treated water by the year 2020 through our requirement for low-consumption water closets (1.6 gallons/flush) pursuant to Resolution 88-2 (Revised). This regulation is scheduled to be effective January 1, 1991.

During the 1985 drought, the Commission adopted Resolution No. 85-36, which established procedures for banning certain nonessential water uses in the Basin (primarily outdoor water uses). Our records indicate that the bans were quite successful, in that summer water use in 1985 did not increase in its normal fashion (i.e., water use in the public water supply section usually increases 25-30 percent during the hot summer months). Instead, water use remained stable.

Leakage in water supply systems is a major problem in the Basin. Our estimates show that unaccounted-for water use, which includes leakage, represents about 23 percent of public water supply usage. This is the reason the Commission adopted Resolution 87-6. Our regulatory objective is to reduce overall unaccounted-for water use in the Basin to 15 percent or less. When we reach that objective, it will lead to a savings of about 80 million gallons per day of treated water.

Nonstructural Flood Loss Reduction Program

MR. BEVILL. Please summarize the Commission's efforts under the nonstructural flood loss reduction program.

MR. HANSLER. Continued advances in computer software designed for emergency planning management have increased the opportunities for the Commission to assist other State and Federal agencies with obtaining the data required to improve flood emergency operations. Such data include flood stage profiles and flood stage forecast maps, which relate forecast flood crests to areas of inundation. These maps can be valuable to emergency personnel responsible for evacuations prior to flooding. The maps can be digitized for use on the computerized emergency systems maintained at the emergency operating centers of each of the four Basin States.

During 1989, work began to prepare flood stage profiles, a preliminary step in the mapping process, for a number of Delaware Basin streams including the Neshaminy Creek, North Branch Rancocas Creek, Neversink River and the Cristina River Basin. Efforts were initiated to locate existing quality topographic mapping with a minimum contour interval of 5 feet. This mapping is generally not available but required for the production of meaningful flood stage forecast maps.

During the past year, the Commission met with the Philadelphia District of the Corps of Engineers concerning completion of flood stage forecast maps for a 70 mile reach of the Delaware River between Belvidere and Burlington, New Jersey. This project, which was started in 1988, utilizes topographic mapping completed during the Corps' Delaware Basin Study and would improve the flood preparedness of numerous main stem communities which sustained damage during the 1955 flood. Funding for the completion of this project has not been available to the Corps, and the Commission hopes to continue efforts to insure completion of this work--either through State funding or technical assistance.

An assessment of the local flash flood warning programs in place in the 39 Delaware Basin counties was begun in 1989. The National Weather Service offers technical assistance to counties interested in establishing a flash flood warning program and provides rain gages for volunteer observers. The program is useful for small ungaged streams for which automatic monitoring is not available. Although a few of the counties within the Delaware Basin maintain strong flood warning programs, participation in the local flash flood warning program should be improved from a basinwide perspective.

The Commission continued to provide National Weather Service flood information and flood insurance study data to interested parties. A microcomputer and modem was recently installed with access to the National Weather Service's DATACOL system for rainfall and stream stage data. This should improve the Commission's access to information during flood events.

Allocation of Estuary Waste Assimilation Capacity

MR. BEVILL. Please explain the process involved in the allocation of estuary waste assimilative capacity.

MR. HANSLER. The allocation of estuary waste assimilative capacity involves a process of assigning to a discharger a fixed quantity of organic waste matter (cabonaceous oxygen demand). The Commission determined through modeling the total permissible amount of organic wastes for each of the estuary water quality zones. A reserve was set aside for future growth. Allocations are made on the basis of equal percent removal of raw waste in a zone. All allocations are more restrictive than those required by the U. S. Environmental Protection Agency's secondary treatment standard.

Water Supply Availability

MR. BEVILL. The East Coast has generally been blessed with abundant water supplies. Can you foresee the day when the allocation of available water supplies will be the major water resources issue in your area?

MR. HANSLER. While it is true the East Coast is generally blessed with abundant rainfall on an average basis, it is not true that we are blessed with abundant supplies that are available during the drier periods.

As stated in our Comprehensive (Level B) Study, the sustainable June-September average flow of the Delaware River at Trenton, New Jersey under 1980 uses and the drought of record (60's) conditions is estimated at 2,587 cubic feet per second (cfs). Considering the projected increase in depletive water use by the year 2000, a flow of about 3,072 cfs is required at Trenton to meet these demands and control the 30-day average chloride level to 121 mg/l at a point in the river critical to the recharge of ground water in southern New Jersey. The Comprehensive Study concluded that the Delaware River Basin Commission should proceed with the construction of modifications of the Francis E. Walter Dam followed by modification of Prompton Dam.

Accordingly, the addition of water supply storage at the Francis E. Waler project is the major water resources issue in our Basin at this time. The longer the delay in building this project, the greater the risk to contamination of ground water in south Jersey with sodium and chlorides.

The impact of this shortage has been realized and overcome by three drought declarations with mandatory water use restrictions within the last decade. Luckily these droughts did not prevail like the drought of the 60's.

MS. BROOKS. I might add that if efforts to gain the Francis E. Walter project fail, I can foresee the Commission being faced in the very near future with the prospect of having to adopt a depletive-use water allocation program in the Basin--the net result of which could be a moratorium on Basin growth. None of us want to face undertaking such a program, and we need the support and help of everyone to bring the vitally needed Francis E. Walter project to fruition in order to eliminate this prospect.

THURSDAY, MARCH 1, 1990.

SUSQUEHANNA RIVER BASIN COMMISSION

WITNESSES

WARNER M. DEPUY, U.S. COMMISSIONER

ROBERT J. BIELO, EXECUTIVE DIRECTOR

DEBRA BLOOM, BUDGET ANALYST, OFFICE OF THE SECRETARY, OFFICE OF BUDGET, DEPARTMENT OF THE INTERIOR

Mr. BEVILL. Next we have the Susquehanna River Basin Commission.

We are pleased to have you with us. Mr. Commissioner, you may proceed as you wish.

Mr. DEPUY. Thank you.

The Commission has given this committee our formal statement, so I will try to review it as briefly as possible. My name is Warner M. Depuy, U.S. Commissioner for the Susquehanna River Basin Commission, and again, Mr. Chairman, it is a pleasure to see all of you again.

As you are probably aware, this is my ninth appearance before you. Accompanying me, and on my immediate left, is Mr. Robert J. Bielo, the Executive Director of the Commission, and along with us is Debra Bloom, Division of Fiscal Services, Office of the Secretary of the Interior Department, who advises my office on budget matters.

I appear before you today in a dual capacity, in support of two appropriations. These items total $501,000. The first consists of $211,000 for salaries and expenses for my office; and the second, $290,000 for the Federal share of the Susquehanna Commission's $1.795 million budget.

Both Mr. Bielo and I have prepared formal statements for the record. We hope that we are prepared to respond to any questions you may have.

[The prepared statements of Mr. Depuy and Mr. Bielo follow:]

STATEMENT OF WARNER M. DEPUY, UNITED STATES COMMISSIONER, SUSQUEHANNA RIVER BASIN COMMISSION, BEFORE THE SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT, COMMITTEE ON APPROPRIATIONS, IN SUPPORT OF THE FISCAL YEAR 1991 APPROPRIATION REQUESTS FOR SALARIES AND EXPENSES, OFFICE OF THE UNITED STATES COMMISSIONER, AND FOR THE FEDERAL CONTRIBUTION TO THE SUSQUEHANNA RIVER BASIN COMMISSION

Mr. Chairman and Members of the Committee: Again, it is a pleasure to appear before you. I do this in a dual capacity, in support of the appropriation request for salaries and expenses for the Office of the United States Commissioner and also for the Federal contribution to the Susquehanna River Basin Commission.

This Federal-Interstate Compact Commission was established pursuant to Public Law 91-575 among the States of Maryland and New York, the Commonwealth of Pennsylvania, and the Federal Government. The Compact serves as the vehicle to produce the most efficient service in the public interest in the conservation, utilization, development, management and control of the water resources of the Basin.

The Commission's membership consists of the Governors of the signatory states, or their appointed designees, and a Federal Member appointed by the President to represent all Federal agencies. Historically, the Federal Member has been the Secretary of the Interior. In addition, each Governor and the President are directed to appoint a Commissioner to serve as alternate to the Member with identical powers of the Member, including the power to vote in the absence of the Member. The non-Federal staff of the Commission receives direction from the Members of the Commission through their alternates.

The duties of the Federal Member and the United States Commissioner are to represent the interests of the Federal Government on the Commission and to protect the national interests in the water resource development programs for the Susquehanna River Basin. To accomplish this, the Member and the Commissioner must work closely with all interested Federal Departments and Agencies, serving as coordinators to assure that Federal interests are fully informed regarding all water resources development programs for the Susquehanna River Basin. They also represent Federal interests in all actions by the Commission relating to the comprehensive plan and the advisability of individual water resource policies, programs, and projects which the Commission may propose or consider.

SALARIES AND EXPENSES

An appropriation of $211,000 for fiscal year 1991 is requested to finance salaries and expenses necessary to enable the United States Commissioner to carry out his responsibilities to protect the Federal Government's interests in the Susquehanna River Basin. This is a $14,000 increase from the level appropriated by the Congress for fiscal year 1990.

CONTRIBUTION TO SUSQUEHANNA RIVER BASIN COMMISSION

A request of $290,000 is to provide for the Federal Government's share of the $1,795,000 current expense budget of the Commission, and is a $18,000 increase from the level appropriated by the Congress for fiscal year 1990. The current expense budget covers expenses of the staff and the regular operating programs of the Commission.

Mr. Bielo, the Executive Director of the Commission, is accompanying me today and has submitted a statement to the Committee which briefly outlines some of our achievements. We will be happy to answer any questions you have regarding the Commission's current activities and new program initiatives proposed for fiscal year 1991.

SUSQUEHANNA RIVER BASIN COMMISSION
1721 North Front Street • Harrisburg, Pennsylvania 17102-2391
717-238-0423

MARCH 1, 1990 STATEMENT OF
ROBERT J. BIELO, EXECUTIVE DIRECTOR
SUSQUEHANNA RIVER BASIN COMMISSION
BEFORE THE SUBCOMMITTEE OF ENERGY & WATER DEVELOPMENT
COMMITTEE ON APPROPRIATIONS

Mr. Chairman and Members of the Committee:

On behalf of the Susquehanna River Basin Commission, let me express our appreciation for this opportunity to appear before you to discuss our programs, highlight major activities and to request your support for the proposed Federal share of the Commission's FY-91 budget.

As you know, the Commission's programs are dictated, at least in general terms, by the Susquehanna River Basin Compact (P.L. 91-575). While six programs are designated by the Compact, three areas, flood plain management, water supply and water quality, have received the most attention.

Throughout 1989, the Commission continued coordination of a program to expand and improve the National Weather Service (NWS) flood warning system in the Susquehanna River Basin. Program elements include installation of approximately 100 automated rain and stream gages, new computer systems, enhancement of existing radar and an improved communications network.

The cooperation of the Congress in providing approximately $7.5 million for this much needed program has been outstanding as has been the cooperation of USGS and State and local government agencies. We are concerned regarding adequate Operations & Maintenance funding so that the system can continue to serve the many flood prone communities along the Susquehanna and its numerous tributaries. Reportedly, NWS has had difficulty in convincing the U.S. Department of Commerce to include operations and maintenance funding for the expanded Susquehanna system in its budget request. Unless the system is adequately maintained, it will quickly lose its utility.

Water supply concerns continue to receive a high level of attention. Low flow water supply management studies are currently being developed for the six major subbasins of the Susquehanna River Basin. These studies have been completed for the Eastern, Chemung and Juniata Subbasins. A draft report has been prepared for the West Branch Subbasin and work is underway on the Upper Susquehanna Subbasin. These studies provide detailed information regarding water use, availability of supplies and outline areas having either surplus or deficit supply capabilities under varying drought conditions.

The Commission has initiated an intensive study of the surface and ground-water resources of the Conodoguinet Creek and

Yellow Breeches Creek Watersheds in the lower Susquehanna Basin, an area that has experienced considerable growth in the last two decades.

The Commission is pleased to report that its project to develop water supply storage at Cowanesque Lake, a Federal Flood Control Recreation Project in Pennsylvania, is operational for water supply storage and release purposes. This project will return, over its 50-year life, approximately $168,000,000 to the Federal Treasury for payment of sunk costs, O&M and interest. The Commission in cooperation with the Corps of Engineers, an electric utility and a solid waste authority is also conducting a feasibility study for acquiring increased storage in the Corps' Curwensville Flood Control Project in Clearfield County, Pa. As in the case of Cowanesque, Curwensville also has the potential, if added storage is found to be feasible, to return significant funds to the Federal Treasury.

Because of interest expressed by the State of Maryland the Commission is also acting as a non-Federal sponsor for a storage feasibility study of the Federal Raystown Flood Control Project in Huntingdon County, Pa. Maryland interest at Raystown is related to fresh water flows for the Chesapeake Bay during low flow periods.

Two other Commission activities that contribute to National level water related programs involve work with EPA on Chesapeake Bay nonpoint source issues and on the restoration of anadromous fishes to the Susquehanna River system. On the latter item, the licensees of the Conowingo Hydroelectric Project in Maryland will be awarding contracts on or about March 1, 1990 estimated at $12,000,000 for construction of new fish passage facilities at the Conowingo Dam. Projects upstream of Conowingo have pledged their cooperation in completing the restoration of this once bountiful fishery resource to the Susquehanna River.

Regrettably, I must advise that the State of New York FY-91 budget, submitted by the Governor, includes only $106,600 or approximately 37% of the amount requested of each signatory party to the Susquehanna Compact. Over the last ten years NYS funding of the SRBC budget is more than $1,000,000 short of funding provided by the other signatory parties.

For the sake of brevity I have only touched on a few of the Commission's ongoing water resources programs. Copies of our annual report have been submitted to your staff and additional information is available if desired. In closing, I would request, on behalf of the Commission, your support for the proposed Federal share of our FY-91 operating expenses in the President's budget request.

Mr. **Bevill.** We will insert the justification material for the Susquehanna River Basin Commission in the record at this point, without objection.

[The information follows:]

SUSQUEHANNA RIVER BASIN COMMISSION
FY 1991 BUDGET JUSTIFICATION

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SUSQUEHANNA RIVER BASIN COMMISSION
SALARIES AND EXPENSES
FY 1991 BUDGET

JUSTIFICATION OF PROGRAM AND PERFORMANCE

Activity: Federal Representation

The Susquehanna River Basin Commission was created by Compact (Public Law 99-575) among the States of Maryland and New York, the Commonwealth of Pennsylvania, and the Federal Government. The purpose of the Compact is to enable the signatory parties to participate jointly in the conservation, utilization, development, and control of water and related resources in the region of the Susquehanna River Basin.

Under the terms of the Compact, the Commission is directed to develop and implement comprehensive plans, policies, and programs relating to the water resources of the Basin; to adopt and promote uniform and coordinated policies for water conservation, control, and development in the Basin; and to encourage the planning, development, and financing of water resources projects according to such plans and policies.

The Commission's membership consists of the Governors of the signatory states, or their appointed designees, and a Federal Member appointed by the President to represent all Federal agencies and who historically has been the Secretary of the Interior. In addition, each Governor and the President are directed to appoint a Commissioner to serve as alternate to the Member, with identical powers of the Member, including the power to vote in the absence of the Member.

The duties of the Federal Member and the United States Commissioner are to represent the interests of the Federal Government on the Commission and to protect the national interests in the water resource development programs for the Susquehanna River Basin. To accomplish this, the Member and the Commissioner must work closely with all interested Federal departments and agencies, serving as coordinators to assure that Federal interests are fully informed regarding all water resources development programs for the Susquehanna River Basin. They also represent such Federal interest in all actions by the Commission relating to the comprehensive plan and the advisability of individual water resource policies, programs, and projects which the Commission may propose or consider.

An appropriation of $211,000 for fiscal year 1991 is requested to finance salaries and expenses necessary to enable the United States Commissioner to carry out his responsibilities to protect the Federal Government's interests in the Susquehanna River Basin.

SUSQUEHANNA RIVER BASIN COMMISSION
DISTRIBUTION OF AUTHORITY BY ACCOUNT

Appropriation: Salaries and Expenses	1989 Actual	1990 Enacted to Date	1990 Adjusted Approp 1/	1991 Estimate
Appropriation	$161,000	$200,000	$197,000	$211,000

SUMMARY OF INCREASES/DECREASES, 1991

Federal Representation:	1991 Base	Changes	1991 Estimate
Budget Estimate, 1991	$197,000	+$14,000	$211,000

ANALYSIS BY ACTIVITY

(Direct Appropriations)

Activity	FY 1989 Amount Available	FY 1990 Enacted to Date	1990 Adjusted Approp 1/	1991 Estimate	Increase (+) or Decrease (-) 1991 Compared with 1990
Federal Representation	$161,000	$200,000	$197,000	$211,000	+ $14,000
Unobligated balance lapsing	$31,000	--	--	--	--
Total	$192,000	$200,000	$197,000	$211,000	+ $14,000

JUSTIFICATION

Federal representation: Fiscal Year 1990, $197,000; Fiscal Year 1991, $211,000; increase $14,000. The increase consists of:

Increase (+) or Decrease (-) Amount	Positions	Total Program	Total Positions	Explanation
+$14,000	--	$211,000	2	To continue to provide for the cost of operation of the Commissioner's office.

1/ Adjusted for reduction pursuant to P.L. 99-177.

SUSQUEHANNA RIVER BASIN COMMISSION
SALARIES AND EXPENSES

For expenses necessary to carry out the functions of the United States member of the Susquehanna River Basin Commission, as authorized by law (84 Stat. 1541), [$200,000] $211,000 (Energy and Water Development Appropriations Act, 1990).

Program and Financing (in thousands of dollars)

Identification code 46-0500-0-1-301		1989 Actual	1990 Estimate	1991 Estimate
	Program by activities:			
10.00	**Total Obligations**	161	197	211
	Financing:			
25.00	**Unobligated balance lapsing**	31	0	0
39.00	**Budget Authority (appropriation)**	192	197	211
	Budget Authority:			
40.00	**Appropriation**	192	200	211
40.00	**Reduction pursuant to P.L. 99-177**	0	(3)	0
43.00	**Appropriation (adjusted)**	192	197	211
	Relation of obligations to outlays:			
71.00	**Obligations incurred, net**	162	197	211
72.40	**Obligated balance, start of year**	15	13	11
74.40	**Obligated balance, end of year**	(13)	(11)	(12)
77.00	**Adjustments in expired accounts**	(3)	0	0
90.00	**Outlays**	160	199	210

SUSQUEHANNA RIVER BASIN COMMISSION
SALARIES AND EXPENSES

Object Classification (in thousands of dollars)

Identification code 46-0500-0-1-301		1989 Actual	1990 Estimate	1991 Estimate
	Personnel compensation:			
11.1	Full-time permanent	116	116	127
11.3	Other than full-time permanent	0	3	3
11.5	Other personnel compensation	3	0	0
11.9	Total personnel compensation	119	119	130
12.1	Personnel benefits: Civilian	10	29	29
21.0	Travel and transportation of persons	3	6	6
23.1	Rental payments to GSA	14	15	14
23.3	Communications, utilities, and miscellaneous charges	2	4	5
24.0	Printing and reproduction	0	3	4
25.0	Other services	12	18	19
26.0	Supplies and materials	1	3	4
99.9	Total obligations	161	197	211

SUSQUEHANNA RIVER BASIN COMMISSION
SALARIES AND EXPENSES

Personnel Summary

Identification code 46-0500-0-1-301	1989 Actual	1990 Estimate	1991 Estimate
Total number of full-time permanent positions	2	2	2
Total compensable workyears:			
Full-time equivalent employment	2	2	2
Average ES salary	$75,500	$78,200	$78,200
Average GS salary	13.2	13.3	13.4
Average GS salary	$42,492	$45,441	$46,861

SUSQUEHANNA RIVER BASIN COMMISSION
SALARIES AND EXPENSES

Detail of Personnel Summary

Identification code 46-0500-0-1-301	1989 Actual	1990 Estimate	1991 Estimate
Special positions at rates equal to or in excess of $78,200:			
U.S. Commissioner	1	1	1
GS/GM-13	1	1	1
Total permanent positions	2	2	2
Unfilled positions, end of year	0	0	0
Total permanent employment, end of year	2	2	2

CONTRIBUTION TO SUSQUEHANNA RIVER BASIN COMMISSION
FY 1991 BUDGET

JUSTIFICATION OF PROGRAM AND PERFORMANCE

The Susquehanna River Basin Commission was created by Compact (Public Law 91-575) among the States of Maryland and New York, the Commonwealth of Pennsylvania, and the Federal Government. The purpose of the Compact is to enable the signatory parties to participate jointly in the conservation, utilization, development, and control of water and related resources in the region of the Susquehanna River Basin.

Under the terms of the Compact, the Commission is directed to develop and implement comprehensive plans, policies, and programs relating to the water resources of the Basin; to adopt and promote uniform and coordinated policies for water conservation, control, and development in the Basin; and to encourage the planning, development, and financing of water resources projects according to such plans and policies.

The principal members of the Commission are the Governors of the signatory States, or their appointed designees, and a Federal Member appointed by the President. The Compact also provides for the appointment of a Commissioner (Alternate Member) by each Governor and the President with identical powers of the Member and power to vote in the absence of the Member.

The fiscal year 1991 estimate requests $290,000 to cover the Federal Government's share of the $1,795,000 Current Expense Budget of the Susquehanna River Basin Commission. Authority for the Federal Government's participation in the Current Expense Budget of the Commission is provided for under Section 14.3 of the Susquehanna River Basin Compact (Public Law 91-575, approved December 24, 1970). The fiscal year 1991 Current Expense Budget for the Commission totals $1,795,000 and represents an increase of $90,000 or 5.3% over its fiscal year 1990 budget. This increase is for incremental costs in salaries and non-discretionary costs of social security, pensions, insurance, and health benefits.

In fiscal year 1991, 26 positions will be funded, the same as fiscal year 1990. Nine positions remain unfunded.

The Susquehanna River Basin Commission's fiscal year 1991 Operating Budget of $1,795,000 will support the following programs:

Introduction

The Susquehanna River Basin Commission's fiscal year 1991 programs address, at the Basin level, current water resources issues of national and regional concern. Examples being in the area of flood damage reduction, surface and groundwater management and protection and nonpoint source pollution.

Flood Plain Management and Protection

This program has received continuing attention by the Commission due to the high flood risk in the basin and the extremely large number of basin communities located in high flood hazard areas.

Flood Forecasting System Improvement Program

Efforts will continue to be directed toward completion and continued maintenance of the Flood Forecasting Improvements Program initiated by the Commission in cooperation with the National Weather Service (NWS) and the U.S. Geological Survey. Program elements include installation of additional rain and stream gages, new computer systems, new and enhanced radar systems and an upgraded communications network. Thus far, the U.S. Congress has appropriated about $7 million to the NWS for the program. The Commonwealth of Pennsylvania has contributed an additional $233,700 for improvements within the Susquehanna Basin.

Water Resources Management

The Commission's efforts in water management have shifted from collection of basic water supply information to the preparation of carefully planned regional water management programs. These programs will serve as guides for future municipal, industrial and agricultural water supply development in the Basin.

Areas of special concern include management and protection of groundwater supplies, consumptive use makeup and low flow and drought emergency management.

Water Resources Quality Management and Protection

Water quality activities will continue at a high level of priority in fiscal year 1991 with continued emphasis on monitoring of nonpoint source contributions. Special effort will be directed to identifying major nutrient loading sources throughout the Basin in cooperation with Maryland and Pennsylvania and the Environmental Protection Agency's Chesapeake Bay Program. A special aspect of the program is monitoring of tile drain effluent from two farms in Dauphin County, Pennsylvania. Nutrient monitoring also continues on selected watersheds in the basin during various precipitation events.

Watershed Management and Protection

The program activities under this topic will be coordinated with the nonpoint source monitoring program to identify specific areas and land use requiring priority action under State and Federal programs.

Recreation, Fish and Wildlife

The program objective is to preserve and/or enhance existing water-related outdoor recreation and where possible to expand these opportunities. A prime example is the Commission's effort to achieve restoration of diadromous fishes to the Susquehanna River. Another area of major concern involves development of a data base and methodology for assessing in-stream flow needs.

Coordination

The Commission serves to coordinate various Federal, State and local programs affecting water resources in the basin. The Comprehensive Plan serves as a basis for developing common approaches to resolution of problems and conflicts. The programs involved are flood control, water supply, water quality, recreation and fish and wildlife, and watershed management activities.

Project Review

The Commission is charged with the responsibility of conducting review of certain projects to assure they are compatible with the Comprehensive Plan and that they comply with all Commission regulations. These reviews may require in some cases extensive technical and administrative analysis, as well as public hearings. Examples are relicensing of hydroelectric facilities, licensing of new electric generating and co-generating facilities, industrial and municipal withdrawals from surface and/or ground waters, significant discharges to waters of the Basin, and flood control projects.

Debris Management

In order to address the ongoing problem of waterborne debris, the Commission has organized a Debris Management Policy Committee consisting of representatives of the lower Susquehanna hydroelectric licensees and various government agencies. As an outgrowth of a Lafayette College study, the Lower Susquehanna hydroelectric licensees and the Commission are moving towards execution of a cooperative agreement for the removal, disposal and eventual reduction of river borne debris. As requested by the signatory parties, particularly the State of Maryland, the Commission plans to continue its involvement in this important effort.

SUSQUEHANNA RIVER BASIN COMMISSION
FY 1991 OPERATING BUDGET

Revenues:	FY 1989 Budget	FY 1990 Budget	FY 1991 Budget
Signatory Parties:			
Maryland	$262,000	$276,000	$290,000
New York	$262,000	$276,000	$290,000
Pennsylvania	$262,000	$276,000	$290,000
Federal Government	$262,000	$272,000 *	$290,000
Other Revenues:			
Grant, EPA-Water Quality (106)	70,000	70,000	80,000
Sale of Publications & Misc. Inc.	75,000	75,000	90,000
Building Rental Income	45,000	45,000	38,000
Fiscal Stabilizaton Fund	410,000	415,000	427,000
TOTAL ALL SOURCES	$1,648,000	$1,705,000	$1,795,000
Expenditure:			
Personal Services	$968,000	$1,005,000	$1,055,000
Fringe Benefits	311,000	336,000	360,000
Special & Contractual Services	48,000	48,000	49,000
Travel & Subsistence, Meetings	34,000	34,000	36,000
Communications, Postage	17,000	17,500	18,000
Rent-Machinery & Equipment	2,500	2,500	2,500
Printing, Reproduction, Legal Ads	26,000	26,000	27,000
Repairs & Maint.-Bldg. & Equipment	29,000	30,500	32,000
Other Contractual Services	19,000	21,000	21,000
Taxes, Utilities, Janitorial Serv.	59,500	65,500	66,500
Mortgage Payments	25,000	25,000	25,000
Supplies & Materials	40,000	42,500	43,000
Miscellaneous Expenses	9,000	9,500	11,000
Automobile & Office Equipment	60,000	42,000	49,000
TOTAL EXPENDITURES	$1,648,000	$1,705,000	$1,795,000

* Original commitment of $276,000 reduced pursuant to P.L. 99-177.

SRBC-10

SUSQUEHANNA RIVER BASIN COMMISSION
CONTRIBUTION TO SUSQUEHANNA RIVER BASIN COMMISSION

COMPARISON OF FUNDING

Appropriation/Activity	Budget Authority 1989 Actual	1990 Enacted to date	1990 Adjusted Approp 1/	1991 Estimate
Contribution to Susquehanna River Basin Commission..	$262,000	$276,000	$272,000	$290,000

SUMMARY OF INCREASES/DECREASES FOR 1991 BY ACTIVITY

	1991 Base	1991 Estimate	Increase (+) or Decrease (-)
Activity: Contribution to the Commission.................	$272,000	$290,000	+$18,000

To provide for the 1991 Federal share of the annual expenses of the Susquehanna River Basin Commission.

JUSTIFICATION

Contribution to the Commission: Fiscal Year 1990, $272,000; Fiscal Year 1991, $290,000; increase of $18,000.

Increase (+) or Decrease (-) Amount	Positions	Total Program	Total Positions	Explanation
+$18,000	--	$290,000	--	Federal contribution to 1991 current expense budget of the Susquehanna River Basin Commission.

1/ Adjusted for reduction pursuant to P.L. 99-177.

SUSQUEHANNA RIVER BASIN COMMISSION
CONTRIBUTION TO SUSQUEHANNA RIVER BASIN COMMISSION

For payment of the United States share of the current expenses of the Susquehanna River Basin Commission, as authorized by law (84 Stat. 1530, 1531), [$276,000] $290,000. (Energy and Water Development Appropriations Act, 1990).

Program and Financing (in thousands of dollars)

	Identification code 46-0501-0-1-301	1989 Actual	1990 Estimate	1991 Estimate
	Program by activities:			
10.00	Contribution to the Commission (object class 41.0)	262	272	290
	Financing:			
39.00	Budget authority	262	272	290
	Budget authority:			
40.00	Appropriation	262	276	290
40.00	Reduction pursuant to P.L. 99-177	0	-4	0
43.00	Appropriation (adjusted)	262	272	290
	Relation of obligations to outlays:			
71.00	Obligations incurred, net	262	272	290
90.00	Outlays	262	272	290

Mr. BEVILL. Mr. Bielo, do you have anything that you wish to add?

Mr. BIELO. There are a couple of things I would like to highlight in our presentation.

First of all, we are very pleased to report that the Cowanesque project in northern Pennsylvania has been completed. Water storage is occurring now as we start to get the spring runoff. The key thing about this project is that it does provide water for two large nuclear powerplants in the basin which are critical to keeping energy supplies at the level they should be.

From the Federal point of view, these projects will return $168 million for that water supply to the Federal Treasury over the next 50 years.

We have two more projects in the feasibility study stage, two Corps projects. If they are found feasible then water storage would be put in place and eventually, if somebody buys it as they have in this case, we would be returning more money and O&M costs to the Federal Government.

Something that has been ongoing for as long as I have been alive almost is the blockage of the Susquehanna River by large hydropower dams.

Mr. MYERS. That doesn't impress us up here. We all have been here for a long time, too.

Mr. DEPUY. You would never know it, Congressman.

Mr. MYERS. It beats the alternative.

Mr. BIELO. This river has been blocked by hydro projects from its mouth upstream since the early 1900s. The Philadelphia Electric Company has agreed to build the first of a series of fish passage facilities that will allow American shad to pass their dam at Conowingo, Maryland for the first time since I believe about 1928.

We think that is a very significant event. There has been litigation over this for the last 20 years that I am acquainted with, however it has worked out very favorably. It looks like we will be able to restore the runs of shad to this large river.

The last thing is an unhappy topic to report. While all our members regularly agree on a budget, when that budget gets submitted in the State of New York, they don't put in the money. Over the last 10 years, we are almost $1 million short on New York State contribution to the Compact for our annual expenses.

That summarizes high points taken from our presentation.

Mr. BEVILL. What is your view of potential for water supply shortages in the Susquehanna River Basin in the upcoming years?

Mr. BIELO. As I mentioned, we have two more storage projects under study. One at Curwensville, a flood control project that's been there a long time; and the other one is the Raystown project.

The feasibility studies are moving forward by the Baltimore District now. When they are completed, we will know what is possible without effecting flood control storage. We would hope by that time to have customers to buy the storage that might be available.

Mr. BEVILL. Thank you.

Mr. Myers?

Mr. MYERS. No questions.

Mr. BEVILL. Mrs. Boggs?

Mrs. Boggs. I certainly would like to commend you on taking care of the low water problems. I think all of us throughout the country recognize, when we remember the experience of the terrible droughts of the last couple of summers, what this means to the whole Nation. Of course, one of the purposes of the projects is to make certain that fresh water flows into the Chesapeake Bay during the low water periods. That fits in with the whole Save the Bay initiative that has been going on for the past few years.

So, thank you very much.

Mr. Depuy. Thank you.

Mr. Bevill. Mr. Bielo, you mentioned that New York sent only 37 percent of what was requested. What is the impact going to be? How are you going to handle that shortfall?

Mr. Bielo. Well, one of the impacts is that we are nine people short on staff. About the only way we have of cutting costs is cutting people. All of our costs are built around personal services, staffing.

Mr. Bevill. Is the State of New York not likely to come through with the rest of it?

Mr. Depuy. They are not likely to do much of anything from my years of experience with them. Mr. Bielo and I have traveled to Albany on several occasions to sell the program. They are tough. I would have the suggestion that if the Federal Government is sending money back to New York, you short-circuit it by $1 million and send it our way.

How would that be?

Mr. Bielo. The Legislature has been very attentive to our request, but it never comes out in the Governor's budget document. We get it as an add-on occasionally, but that is not a very easy way to live. Over the 10 years, it has amounted to $1 million shortage.

Mr. Bevill. They must not realize that a clean water supply is becoming more important every day.

Mr. Bielo. They are in the upstream situation and they don't feel that there is a whole lot to be done to improve their situation. So, it is tough.

Mr. Bevill. Well, thank you very much. I have some additional questions you can answer for the record.

[The information follows:]

OTHER SIGNATORY CONTRIBUTIONS

MR. BEVILL. Are the other Compact members current in their contributions to the Commission?

MR. BIELO. Yes, with minor exceptions.

FLOOD WARNING SYSTEM

MR. BEVILL. Have your efforts to expand and improve flood warning systems in the Susquehanna River Basin resulted in reduced flood damages?

MR. BIELO. The expansion and improvement program required approximately four years to complete (1989). During that time, we have not experienced prolonged or widespread intense precipitation events. In fact, during the last five years stream flows have generally remained normal or slightly below normal. Only one major precipitation event (Hurricane Gloria, 1985) occurred during the expansion installation period and it affected only a small area in the downstream portion of the basin.

We have been advised by the Broome Co., N.Y. Emergency Management Agency of improved accuracy and timeliness of reports originating from the upgraded Binghamton, N.Y. station.

MR. BEVILL. Last year, in response to a question, you testified that the tile drain monitoring program on two farms in Dauphin County, Pennsylvania, was awaiting sufficient rainfall. Do you have anything to report on that program this year?

MR. BIELO. The tile drain program involves two farms, eight wells, two shallow auger holes, nine soil water monitors, tile drains and facilities to collect surface water runoff.

The program looks at both ground and surface water quality. To date, there have been two good recharge events affecting the wells. After one event, nitrate concentration increased significantly. Overall, it appears the shallow ground waters are nitrate contaminated, whereas the deeper ground waters show much lower nitrate concentrations.

The tile drains show high nitrate concentration when flowing. It may be possible to use tile drains to collect much of this shallow ground water and subject it to some kind of natural treatment. We have developed a proposal to test this theory.

O&M FOR NATIONAL WEATHER SERVICE FLOOD WARNING SYSTEM

MR. BEVILL. What is the status of operation and maintenance funding for the National Weather Service flood warning system in the Susquehanna River Basin?

MR. BIELO. The recently installed satellite rain and stream gages in the Susquehanna River Basin are maintained for NWS by USGS. The funding for O&M is provided by NWS. For FY-90, funding was insufficient and USGS advised NWS that starting March 1, 1990 they (USGS) would start shutdown of this new automated equipment.

The planned shutdown has been delayed and Basin Senate and House Members are reviewing the situation with USGS, NOAA and NWS.

REGIONAL WATER MANAGEMENT PROGRAMS

MR. BEVILL. Please elaborate on your efforts to prepare carefully planned regional water management programs under the Water Resources Management program.

MR. BIELO. Staff is in the process of preparing framework level water supply studies by subbasin for the Susquehanna Basin. To date, five of the six subbasin plans have been completed.

The plans identify all water users and water uses by subbasin, determine available supplies and project status of supply vs. demand under low flow conditions.

The data enables prompt assessment of the impact of new uses, especially consumptive uses, and provides a basis for review and action on proposed projects.

RIVER BORNE DEBRIS

MR. BEVILL. What is the status of the cooperative agreement for the removal, disposal and reduction of river borne debris?

MR. BIELO. The water borne debris program moved into an implementation phase. Two utilities have developed large scale debris collection and removal projects at their hydroelectric facilities.

Basically, the utilities collect floating debris trapped behind their dams, load it on to barges, transfer it to shore and then chip the wood portion (95%) for mulch and dispose of the manmade materials (5%) in approved landfills.

Currently, SRBC is working with other agencies, namely the State Highway Department and local government to help reduce the amount of debris that enters the river.

WATER SUPPLY SHORTAGES

MR. BEVILL. What is your view of the potential for water supply shortages in the Susquehanna River Basin in the upcoming years?

MR. BIELO. The Susquehanna River Basin generally is water rich. Water supply problems along the main stem and the major tributaries are minimal at this time. However, there is very little storage in place in this basin to supplement downstream flows during periods of prolonged drought.

Many areas away from the main stem and its major tributaries, especially north and west of Harrisburg frequently suffer from low stream flows and falling ground water tables.

The Susquehanna River is strategically located to serve as a major source of water supply to the east coast area extending from Philadelphia to Washington, D.C. The area from Philadelphia to Baltimore is already experiencing water supply problems and the Susquehanna is the only major freshwater source readily available.

THURSDAY, MARCH 1, 1990.

INTERSTATE COMMISSION ON THE POTOMAC RIVER BASIN

WITNESS

L. E. ZENI, EXECUTIVE DIRECTOR

Mr. BEVILL. Next we have the Interstate Commission on the Potomac River Basin, and Mr. Zeni. We are pleased to have you with us. You may proceed as you wish. Your prepared statement will be made a part of the record.

Mr. ZENI. Good morning.

STATEMENT OF MR. ZENI

I am Lee Zeni, Executive Director of the Interstate Commission on the Potomac River Basin, and I am substituting for Mrs. Phyllis Cole, who is the Chairwoman and a Commissioner from West Virginia. She was appointed a delegate by Governor Caperton last September, and she called yesterday and said she had a legislative calendar of critical issues for her district and that she didn't dare leave Charleston, and asked that I read her statement. I would, with your permission.

Mr. BEVILL. That would be fine.

Mr. ZENI. We want to thank you, the committee, for the opportunity to testify in support of the fiscal year 1991 Federal appropriation request of $300,000. We come before this committee seeking the good offices of the United States Government to provide a Federal share of the monies allowed for the operations of the Interstate Commission on the Potomac River Compact of 1940.

We are proud of our 50 years of service. We are indeed appreciative that Congress recognizes the substantive value of this Commission to the Potomac River Conservancy District, containing the Federal seat of government. We believe it is to the benefit of the Federal establishment that Congress honors its partnership with the signatories of Maryland, Virginia, West Virginia, Pennsylvania and the District of Columbia in financing the activities of the Commission.

I am pleased to report to you, sir, that the financial commitments of the signatories are being met, and that they have agreed to the Commission's 1991 request.

Last year, we requested $379,950, which Congress trimmed to $300,000. Through severe cost-cutting initiatives and measures, we absorbed the reduction without any substantive change in any of the projects.

It is our view that we can continue the cost savings and therefore limit our request this year to the same amount as awarded last year, $300,000.

In our testimony last year, we outlined the evidence that we had provided to the Office of Management and Budget regarding the support that the Commission provides to the Federal interest in the Basin. The evidence remains true today. In the interest of time, we will not go through the details.

The restoration of the Potomac River and its tributaries is a continuing saga; however, improvement is real. Perhaps you may have heard that during a recent fishing trip arranged by the Commission for Justice O'Connor, she caught a four-pound large-mouth bass in the Washington Channel right in sight of this wonderful Capitol.

There is certainly solid evidence that the Potomac has come a long way from when President Johnson referred to it as an open sewer. We want to maintain all of the waterways within the Basin. This Commission does and has and will play an intergovernmental role in the Basin, and in the Chesapeake Bay region.

Without the Federal support that we are requesting, the Commission's ability to continue this role is somewhat diminished. And again, thank you for the opportunity to testify before this committee. Your responsibility for allocating scarce resources to so many important and vital projects is monumental, to say the least.

I hope that the budget justification material that we submitted as part of the record makes a case for the valuable payback that the Nation's citizens receive for providing finances to the Interstate Commission.

This is the end of her statement, and I thank you for letting me read it, sir.

[The prepared statement of Ms. Cole and the justification material follow:]

STATEMENT BEFORE THE HONORABLE TOM BEVILL, CHAIRMAN, THE SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT, COMMITTEE ON APPROPRIATIONS, U. S. HOUSE OF REPRESENTATIVES

BY

MRS. PHYLLIS M. COLE, CHAIRWOMAN
INTERSTATE COMMISSION ON THE POTOMAC RIVER BASIN (ICPRB)
AND COMMISSIONER FROM THE STATE OF WEST VIRGINIA

MARCH 1, 1990

I WANT TO THANK YOU FOR THE OPPORTUNITY TO TESTIFY IN SUPPORT OF THE INTERSTATE COMMISSION ON THE POTOMAC RIVER BASIN'S REQUEST FOR THE FISCAL YEAR 1991 FEDERAL APPROPRIATION OF $300,000. MY NAME IS PHYLLIS COLE, CHAIRWOMAN OF THE COMMISSION AND A COMMISSIONER FROM THE WILD, WONDERFUL STATE OF WEST VIRGINIA. I AM ALSO A MEMBER OF THE WEST VIRGINIA HOUSE OF DELEGATES, APPOINTED BY GOVERNOR CAPERTON LAST DECEMBER.

WE COME BEFORE THIS COMMITTEE SEEKING THE GOOD OFFICES OF THE UNITED STATES CONGRESS TO PROVIDE THE FEDERAL SHARE OF THE MONEYS NECESSARY FOR THE OPERATIONS OF THE INTERSTATE COMMISSION ON THE POTOMAC RIVER BASIN.

THE OFFICE OF MANAGEMENT AND BUDGET HAS ADVISED US ONCE AGAIN THAT THIS COMMISSION WAS NOT INCLUDED IN THE PRESIDENT'S FY 1991 BUDGET AS A MATTER OF POLICY RATHER THAN ONE OF SUBSTANCE.

WE ARE INDEED APPRECIATIVE THAT THE CONGRESS RECOGNIZES THE SUBSTANTIVE VALUE OF THIS COMMISSION TO THE POTOMAC VALLEY CONSERVANCY DISTRICT, CONTAINING THE FEDERAL SEAT OF GOVERNMENT. WE BELIEVE IT IS TO THE BENEFIT OF THE FEDERAL ESTABLISHMENT THAT CONGRESS HONORS ITS LEGISLATIVE PARTNERSHIP WITH THE SIGNATORIES OF MARYLAND, PENNSYLVANIA, VIRGINIA, WEST VIRGINIA, AND THE DISTRICT OF COLUMBIA IN FINANCING ACTIVITIES OF THE INTERSTATE COMMISSION ON THE POTOMAC RIVER BASIN. I AM PLEASED TO REPORT TO YOU THAT THE FINANCIAL COMMITMENTS OF THE SIGNATORIES ARE BEING MET AND THAT THEY HAVE AGREED TO THE COMMISSION'S FY '91 REQUESTS.

LAST YEAR WE REQUESTED $397,950 WHICH CONGRESS TRIMMED TO $300,000. WE HAVE WATCHED WHILE CONGRESS STRUGGLED TO ALLOCATE AVAILABLE RESOURCES TO SO MANY DESERVING ACTIVITIES AND NEEDS. WE APPRECIATE THE HERCULEAN TASK IT TOOK TO COMPLETE THE BUDGET FOR LAST YEAR. IT SEEMS LIKELY THAT FISCAL YEAR 1991 WILL BE EVERY BIT AS DIFFICULT. WE FOUND THAT BY REDUCING TRAVEL TO CONFERENCES AND SEMINARS, BY CONSOLIDATING COMMISSION MEETINGS, BY RENEGOTIATING OUR RENT CONTRACT, BY CAREFULLY MONITORING OFFICE EXPENSES, AND BY REDUCING OUR ADMINISTRATIVE STAFF, WE WERE ABLE TO ABSORB THE $97,950 REDUCTION WITHOUT CUTTING

SUBSTANTIVE PROJECTS. IT IS OUR VIEW THAT WE CAN CONTINUE THESE COST SAVING MEASURES ANOTHER YEAR AND THEREFORE ARE LIMITING OUR REQUEST TO THE SAME LEVEL AS CONGRESS GRANTED LAST YEAR, $300,000.

IN OUR TESTIMONY LAST YEAR WE OUTLINED TO THIS COMMITTEE THE EVIDENCE WE HAD PROVIDED TO THE OFFICE OF MANAGEMENT AND BUDGET REGARDING THE SUPPORT THIS COMMISSION PROVIDES TO FEDERAL INTERESTS IN THE POTOMAC BASIN. THE EVIDENCE REMAINS TRUE TODAY. THIS COMMISSION PERFORMS CRITICAL WATER MANAGEMENT FOR THE NATION'S CAPITAL, AND HAS SUCCESSFULLY AVERTED WATER RATIONING WHEN MANY AREAS WOULD BE SUFFERING THE THREAT OF SUCH RESTRICTIONS. THE COMMISSION IS ALSO INVOLVED IN THE CONTINUED CLEANUP EFFORTS OF THE POTOMAC AND ANACOSTIA RIVERS, OUR NATION'S CAPITAL'S TWO RIVERS. OTHER ACTIVITIES OF BENEFIT TO THE FEDERAL ESTABLISHMENT INVOLVE TECHNICAL SERVICES TO THE NATIONAL PARK SERVICE, PARTNERSHIP WITH THE CORPS OF ENGINEERS' BALTIMORE DISTRICT FOR FLOOD CONTROL PROJECTS IN THE UPPER BASIN, WORK FOR THE ENVIRONMENTAL PROTECTION AGENCY IN THE CHESAPEAKE BAY PROGRAM, CARRYING OUT PUBLIC EDUCATION AND INFORMATION PROJECTS DESIGNED TO ENCOURAGE CITIZENS TO PARTICIPATE IN PROGRAMS OF ENVIRONMENTAL RESTORATION AND TO PROMOTE POLLUTION PREVENTION, HIGHLIGHTING THE RECREATIONAL POTENTIAL AND PUBLIC ACCESS OPPORTUNITIES IN THE BASIN, AND WORKING ON THE DEVELOPMENT OF MATHEMATICAL MODELS FOR WATERSHED

EVALUATIONS. ADDITIONAL DETAILS ON THIS COMMISSION'S SUPPORT OF THE FEDERAL INTEREST ARE OUTLINED IN ATTACHMENT II.

IN ATTACHMENT I WE HAVE PROVIDED A LISTING OF REVENUES AND EXPENDITURES FOR FY '90 AND PROJECTED FOR FY '91. A COMPARISON OF THE TWO YEARS IS SHOWN. YOU WILL NOTE THAT THE BUDGETS HAVE REMAINED CONSTANT. ALSO, IN ATTACHMENT I, A DETAILED BUDGET FOR THE COMMISSION PROJECTS IS GIVEN. MOST OF THESE PROJECTS WILL CONTINUE INTO FY '91. NEW PROJECTS WILL BE DESIGNED TO MEET THE NEEDS OF THE STATES AND THE SEVERAL FEDERAL DEPARTMENTS. THE RESTORATION OF THE POTOMAC RIVER AND ITS TRIBUTARIES IS A CONTINUING SAGA. HOWEVER, IMPROVEMENT IS REAL. PERHAPS YOU MAY HAVE HEARD THAT DURING A FISHING TRIP ARRANGED BY THE COMMISSION, JUSTICE O'CONNOR CAUGHT A 4 POUND LARGE-MOUTH BASS IN THE WASHINGTON CHANNEL. CERTAINLY SOLID EVIDENCE THAT THE POTOMAC HAS BOUNCED BACK. THE ANACOSTIA, THE MONOCACY, THE SHENANDOAH, AND MY OWN SOUTH BRANCH WILL ALSO BECOME MORE PRODUCTIVE IN THE NOT-TOO-DISTANT FUTURE. THE SUCCESS IN THE POTOMAC SHOULD GIVE US ALL A LIFT ABOUT RESTORING RIVERS AND ESTUARIES THROUGHOUT THE NATION.

THE COMMISSION CAN AND DOES PLAY A UNIQUE INTERGOVERNMENTAL ROLE IN THE POTOMAC BASIN AND IN THE CHESAPEAKE BAY REGION. IT HAS 49 YEARS EXPERIENCE. A ROUTINE EXAMPLE OF INTERSTATE COOPERATION MADE SMOOTH BY THE COMMISSION OCCURRED WHEN MARYLAND

AND PENNSYLVANIA COMMISSIONERS, AT A RECENT MEETING, EXPRESSED CONCERN WITH WORDING IN AN ABANDONED COAL MINING BILL INTRODUCED BY CONGRESSMAN RAHALL OF WEST VIRGINIA. THE COMMISSION WORKING INFORMALLY WITH APPROPRIATE AGENCIES IN MARYLAND AND PENNSYLVANIA PROVIDED CONGRESSMAN RAHALL WITH AMENDMENTS THAT RESPONDED TO SPECIAL CONDITIONS IN THESE STATES' MINING PROGRAMS. IT PASSED THE HOUSE. HOWEVER, WE ARE STILL FOLLOWING THE BILL TO ENSURE THAT THE FINAL BILL GIVES ENVIRONMENTAL PRIORITIES ADEQUATE EMPHASIS. WATER QUALITY IN THE NORTH BRANCH OF THE POTOMAC IS IMPORTANT TO THE WATER SUPPLY OF THE METROPOLITAN WASHINGTON AREA AND TO THE ECONOMIC WELL-BEING OF THE REGION.

THE INTERSTATE COMMISSION ON THE POTOMAC RIVER BASIN COMPACT OF 1940, AMENDED IN 1970, SPECIFIES THAT THE COMMISSION SHALL BE FINANCED "BY APPROPRIATIONS FROM THE SIGNATORY BODIES AND THE UNITED STATES". WITHOUT FEDERAL PARTICIPATION, A CRITICAL ELEMENT IN CONTINUING THE FEDERAL-STATE RELATIONSHIPS VITAL TO THE HEALTH AND WELFARE OF THE RESOURCES OF THE BASIN AND THE BAY WILL BE LOST. THE ECONOMIC VALUE AND BENEFITS DERIVED FROM ENHANCED LIVING RESOURCES, RECREATIONAL OPPORTUNITIES, FLOOD CONTROL, AND BETTER ENVIRONMENTAL QUALITY SHOULD MORE THAN EXCEED THE REQUESTED FEDERAL CONTRIBUTION OF $300,000.

AGAIN, THANK YOU FOR THE OPPORTUNITY TO TESTIFY BEFORE THIS COMMITTEE. YOUR RESPONSIBILITY FOR ALLOCATING SCARCE RESOURCES TO SO MANY IMPORTANT AND VITAL PROJECTS IS MONUMENTAL, TO SAY THE LEAST. I HOPE THAT I HAVE BEEN ABLE TO MAKE A CASE FOR THE VALUABLE PAY-BACK TO THE NATION'S CITIZENS FOR THEIR FINANCIAL SUPPORT OF THE INTERSTATE COMMISSION ON THE POTOMAC RIVER BASIN.

ATTACHMENT I

BUDGET JUSTIFICATION MATERIAL

INTERSTATE COMMISSION ON THE POTOMAC RIVER BASIN

Proposed Expenditures for Fiscal Years 1990 & 1991

Expenditure Categories[1]	FY 1990	Estimated FY 1991
Personnel Salaries & Benefits	$799,780	$831,750
Rent, Office Expense, Travel, Publications, etc.	433,869	446,885
Consultants & Contracts	461,708	420,000
TOTAL Expenditures	$1,695,357	$1,698,635
TOTAL Staff	19	19

***

Estimated Contributions & other Projected Income for FY 1990 & 1991

Income Source		
Signatory States		
District of Columbia	$57,330	$ 60,195
Maryland	99,120	104,075
Pennsylvania	26,985	28,335
Virginia	93,450	98,125
West Virginia	25,620	26,905
Subtotal, States	$302,505	$317,635
Direct U.S. Appropriation	300,000	300,000
USEPA Annual Program Grant, Sec.106 Fed.Clean Water Act	160,000	160,000
CO-OP Contribution from Water Util.[2]	189,000	190,000
Other Sources (Spec.Proj's.,Int.,etc.)	631,095	651,000
Carryover from Previous Year	124,702	80,000
TOTAL Income	$1,707,224	$1,698,635

(1) Budget Table for FY '90 Projects on Page 2. of this attachment.

(2) Washington Suburban Sanitary Commission (MD), Fairfax County Water Authority (VA), and the Dept. of Public Works (DC).

ATTACHMENT II

INTERSTATE COMMISSION ON THE POTOMAC RIVER BASIN

A. HISTORY:

The Interstate Commission on the Potomac River Basin (ICPRB) was created with the Potomac Basin Conservancy Compact of 1940 by the signatory bodies, i.e., the Commonwealths of Virginia and Pennsylvania, the States of Maryland and West Virginia, and the District of Columbia. The 1940 Compact was developed for the purpose of controlling pollution in the Potomac drainage area and the U. S. Congress approved it on July 11, 1940. The signatory bodies later ratified amendments to the Compact to broaden the Commission's coordination, investigation, and education responsibilities to include "development, utilization and conservation of the water and associated land resources: of the basin. The U. S. Congress approved the amendments with the passage of Public Law 91-407 on September 25, 1970. Members of the Commission are appointed by the Chief Executive (Governor or Mayor) of each signatory body according to provisions of its ratifying statue and by the President for the federal government.

B. SERVICE AREA:

The service area covers the 14,700 square miles of the Potomac drainage basin in the District of Columbia and parts of Maryland, Pennsylvania, Virginia and West Virginia, including several thousand square miles of national parks and forests and other federally-owned lands.

C. ORGANIZATION:

All ICPRB responsibilities under the Compact are vested in the Commission which is administered by the Commissioners (three plus alternates from each of the four states, the District of Columbia and the federal government) through an Executive Director and staff located in Rockville, Maryland. The Commissioners meet quarterly in March, June, September and December to carry out their policy direction and other responsibilities. Between quarterly meetings, this function is vested in the Executive Committee which is composed of one member from each jurisdiction and meets on the call of the Chairman.

D. WORK PROGRAM:

1. Water Supply-

Implementation of the Potomac Water Supply Coordination Agreement of July 22, 1982 for management of upper basin storage reservoirs (Randolph Lake and Savage River Reservoir) and downstream water supply withdrawals in the Metro Washington Area through the CO-OP Section (Cooperative Water Supply Operations on the Potomac). ICPRB CO-OP has developed and will continue to refine and operate the computerized analytical programs for cooperative operations of reservoirs and withdrawals to assure water supply reliability, maintenance of streamflows to protect water quality and aquatic ecosystems, and maximization of benefits to other reservoir purposes. The cooperative operations coordinated by ICPRB CO-OP have enabled Metro Washington utilities to avoid the threat of water use restrictions such as those required of users of the Delaware River and other sources in the eastern United States; also they have eliminated the need for additional reservoir storage in the upper Potomac basin until well after the year 2000, thus saving a minimum of an established $250 million as proposed in earlier plans.

2. **Water Quality-**

a. ICPRB's major water quality program emphasis will be to assist the states and EPA in the continuing implementation of Chesapeake Bay cleanup initiatives, coordinated by the State/EPA Executive Council (VA, PA, MD, DC and USEPA) and its Implementation Committee and Subcommittees. ICPRB's Chesapeake Bay role calls for continuation of its traditional leadership and coordination under the Potomac Basin Interstate Compact for the Potomac arm of the Bay, which is second only to the Susquehanna River as a catchment area draining to the Bay. Under current arrangements, continuation of the Potomac estuary cleanup strategy is implemented through the Potomac Strategy State/EPA Management Committee (USEPA, DC, MD, VA, ICPRB and Metro Washington Council of Governments).

ICPRB's work in cooperation with the Potomac Strategy Committee especially focuses on the determination of the causes, frequency of occurrence, and controlability of algal blooms (especially blooms of noxious blue-green species such as occurred in 1983) in the upper portion of the tidal estuary. Also included are evaluations of:

(1) the impact, including benefits, of Metropolitan Washington pollution control programs on the lower estuary and Chesapeake Bay and,

(2) the role of nutrients and sediment from the upper free-flowing portion of the Potomac Basin above the Metropolitan Washington area in the estuary and the Bay.

b. Conduct of planning studies on sediment and nutrient transport from upper basin (WV, VA, PA and MD) nonpoint pollution sources and the effectiveness of controls for reducing their contributions to Potomac estuary and Chesapeake Bay pollution problems. This includes development of models and other methods of long-term assessment of the storage and transport of sediment and nutrients in the free-flowing river and tributaries as affected by nonpoint pollution controls, especially best management practices on agricultural lands.

c. Development of recommended water demand and supply management strategies for decreasing the severity, duration and frequency of low flows and related adverse impacts on water quality and aquatic life in the river and estuary; also for minimizing instream conflicts between water supply and water quality and for enhancing fisheries and recreational benefits below the Savage River and new Randolph reservoirs in the upper basin and downstream to the Potomac estuary. This will continue to be achieved in part through the Instream Flow Committee composed of representatives from federal and state water and fisheries agencies and chaired by ICPRB.

d. Coordination of the Potomac basin surface water quality monitoring network by means of a task force of state and federal representatives, and evaluation and reporting on pollution control progress and water quality trends throughout the five-state basin.

e. Development and refinement of technical tools, such as mathematical computer models for interpreting monitoring information and for evaluating the attainment of water quality standards and opportunities for maximizing benefits of wastewater treatment and other pollution controls, and for maintaining interstate compatibility of standards and pollution control programs.

f. Maintenance, improvement and utilization of the toxic spill travel-time model for the Potomac and major tributaries as an early warning system for water supply intakes, and for other purposes.

g. Technical assistance with other major water-related projects and research to solve problems of interstate significance, as needed.

3. Public Education and Information-

Publication of ten (10) issues each year of the Potomac Basin Reporter, the only basin-wide current event water information periodical; provision of public information and education assistance to the State/EPA Chesapeake Bay Program, including report preparation; organization and conduct of periodic State of the Potomac public meetings and publication of reports for the lay public; continuation of summer Potomac River Watch weekly reports about water quality and recreational opportunities for use by the news media; continuation of the news media outreach program about the basin's water resources, especially the improved water quality, recreation and other values of the Potomac and its tributaries throughout the basin; and maintenance and updating of the library of Potomac basin information materials for use by technical organizations and the public and for responding to the usual 100 or more annual requests for Potomac-related educational material and information.

E. WORK PROJECTS

1. Flood Control and Sedimentation Reduction in the Upper Potomac Basin

The activities of ICPRB in working with the Baltimore District Corps of Engineers and the State of West Virginia for the flood control studies of Petersburg and Moorefield, West Virginia are very important to the successful construction of the projects.

ICPRB has a major responsibility for coordinating with state, county and city organizations. The primary goal of the public involvement/coordination program is to promote understanding of the planning/design/construction process.

ICPRB will prepare a baseline description of geomorphologic, archelolgical, and architectural resources within the project area and immediate vicinity and will undertake the necessary environmental analyses to support plan formulation, assessment, and evaluation and to prepare the feasibility report and accompanying environmental document (EIS or EA).

A Regional Economic Impact Analysis must be accomplished. The objective of this regional analysis shall be to determine and quantify (where possible) the secondary adverse and beneficial effects associated with construction and operation of a flood control project.

BUDGET TABLE FOR FY'90 PROJECTS

October 1, 1989

Project Description	Direct Salary	Fringe Benefits	Travel	Equip-ment	Supplies	Con-tracts	Consul-tants	Publi-cations	Educa.-Resource	Meeting Expense	Total Direct	In-direct	TOTAL	(ICPRB) (Contribution)
TECHNICAL SERVICES														
21. Monocacy Water. Model	34,583	12,512	900	500	2,000		2,500				52,995	26,439	79,434	434
22. Chesapeake Bay Pgm	53,602	19,393	750			15,000					88,745	40,979	129,724	64,724
23. W.Q. Planning & Mgmt	14,256	5,158	900								20,314	10,899	31,213	15,213
24. State W.Q. Assist.	19,695	7,126	500								27,321	15,057	42,378	15,378
25. Monocacy W.Q. Monit.	4,063	1,470	650	1,000	1,000	49,750					57,933	3,106	61,039	9,247
26. DC Sed. Toxics Survey	6,452	2,334	400			42,500					51,686	4,932	56,618	6,618
27. Potomac River Model	49,546	17,926	500								67,972	37,879	105,851	57,851
WATER RESOURCES														
41. W.V. Flood Study	4,139	1,497	500		300	61,500					67,936	3,164	71,100	71,100
42. NPS Flood Alert	5,523	1,998	1,350		600	2,000					11,471	4,222	15,693	5,693
43. Plan. & Agency Support	1,244	450	900								2,594	951	3,545	3,545
44. Anacostia Riv. III	15,560	5,630	1,000	3,000	2,500	10,767	9,900				48,357	11,896	60,253	30,253
45. Consumptive Use	2,924	1,058	150								4,132	2,235	6,367	1,367
46. Shenandoah Grndwtr Stud	14,516	5,252	250								20,018	11,098	31,116	31,116
CO-OP SECTION														
51. Planning & Mgmt.	9,509	3,440									12,949	7,270	20,219	
52. Water Supply Operations	59,363	21,478	3,600								84,441	45,384	129,825	
53. Water Quality Issues	11,998	4,341									16,339	9,173	25,512	
PUBLIC EDUCA. & INFO.														
61. Pub. Ed. & Tech. Trans.	30,675	11,098	850	250				31,900			74,773	23,451	98,224	48,224
62. Basin Public Infor.	13,804	4,994	1,550					8,000	400		28,748	10,553	39,301	27,301
63. Plan. & Agency Support	7,721	2,793									10,514	5,903	16,417	16,417
64. Anacostia Restoration	26,854	9,716	300		500		82,710	22,000	3,500	1,500	147,080	20,530	167,610	53,400
65. 50th Anniv. Events	21,186	7,665	1,700				18,935	7,900	7,100	3,600	68,086	16,197	84,283	84,283
LIVING RESOURCES														
71. N. Br. Rec. Fishing	2,960	1,071	400			25,000	7,500				36,931	2,263	39,194	39,194
72. DC Resident Fish Survey	1,344	486	50			26,904					28,784	1,027	29,811	346
73. DC Anad. Fish Survey	1,188	430	50			19,002					20,670	908	21,578	798
74. DC Artificial Reef Eval	1,188	430	50			24,540					26,208	908	27,116	270
75. Anacostia Stream Rest.	52,508	18,997	1,500		2,000	50,000			30,000		155,005	40,143	195,148	39,148
TOTAL ($)	486,401	168,743	18,800	4,750	8,900	326,963	121,545	69,800	41,000	5,100	1,232,002	356,567	1,588,569	621,918

NOTES: 1) Indirect = (Direct Salary + Fringe) * ICR
ICR = 0.5614
2) Total Direct = Sum of Columns 2-11
3) ICPRB Contribution = Portion of Total cost not supported by special projects income.

Participating with the Corps of Engineers in plan formulation and evaluation activities, ICPRB and the Corps will identify exact project alignments, layouts, and levels of protection for detailed examination during the feasibility phase. ICPRB will conduct an interior drainage analysis on both banks of the South Branch Potomac River through Petersburg. The purpose of the analysis is to determine the runoff from the interior drainage areas for various storms and to develop ponding elevation versus frequency curves for all of the interior ponding areas.

Finally, ICPRB will coordinate with the ongoing U.S. Weather Service - SCS flood warning program and provide a description of the program for the present feasibility study.

2. The Anacostia River Watershed Restoration

The signatories to the Anacostia Watershed Restoration Agreement of 1987, the District of Columbia, the state of Maryland and its affected counties, Montgomery and Prince George's, have committed themselves to these goals for the Anacostia River and its tributaries:

- o Achievement of improved water quality and the protection of aquatic life, habitat, and other beneficial ecological relationships;
- o Basin-wide management of erosion, sediment, and other sources of pollution;
- o Maintenance of the tidal portion of the Anacostia River as a navigable waterway for commercial and recreational activities insofar as this is practical;
- o Expansion of opportunities for public recreational access and use; and
- o Enhancement of public interest and public participation in restoration activities.

The Interstate Commission on the Potomac River Basin (ICPRB) has been designated by the 1987 Anacostia Watershed Restoration Agreement to: (a) coordinate and implement public education and public participation activities; and (b) develop a resource enhancement and restoration proposal to address issues such as dredging, river access, and biological productivity. In both of these efforts, the Commission plays several roles as a designer and implementor of programs. Above all, ICPRB is a facilitator, bringing together where desirable or necessary, the resources, programs, and funding to achieve the restoration of a long neglected urban watershed in the National Capital Area. The Commission commitments are carried out in cooperation with the signatories to the Agreement and the Metropolitan Washington Council of Governments (COG).

Public Education and Participation

There are three thrusts of the ICPRB Public Education and Participation effort:

(1) To support and enhance local and state watershed improvement efforts, and to encourage mutually beneficial linkages between programs where desirable.

(2) To educate the public about watersheds, specifically, the Anacostia watershed, and the link between the Anacostia, the Potomac, and the Chesapeake Bay.

Anacostia River Resource Restoration and Enhancement

The goal of the resource restoration and enhancement plan is to increase the opportunities for recreational fishing in the Anacostia River. The program addresses the issues of biological productivity, with the objective of increasing the fisheries population sufficient to support expanded recreational fishing opportunities. This objective will be achieved in a two-phased approach. The first phase requires improving the physical environment in order to support a greater fisheries population. The second task is the reintroduction of desirable fish in order to establish viable resident populations.

The more difficult and time consuming task is the physical restoration of the river. Sedimentation and bank erosion, low dissolved oxygen, and bacterial contamination have been identified as the major environmental problems. These concerns are being addressed by a variety of efforts by several agencies in Montgomery and Prince George's counties along with the Metropolitan Washington Council of Governments (COG), Maryland and District of Columbia water-quality, fisheries, and sediment control programs, and federal agencies such as the Environmental Protection Agency and the Soil Conservation Service of the Department of Agriculture. All of these efforts collectively are providing the necessary restoration of the physical environment to support fishery resources.

3. The Chesapeake Bay Cleanup

The Chesapeake Bay is a national treasure and a resource of worldwide significance. Its ecological,, economic, and cultural importance are felt far beyond its waters and the communities that line its shores. Man's use and abuse of its bounty, however, together with the continued growth and development of population in its watershed, have taken a toll on the Bay system. In recent decades, the Bay has suffered serious declines in quality and productivity.

Representing the Federal government and the States which surround the Chesapeake Bay, the regional governments have acknowledged their stake in the resources of the Bay and accept their share of responsibility for its current condition. They are determined that this decline will be reversed. In response, all of the jurisdictions have embarked on ambitious programs to protect the shared resource and restore it to a more productive state.

Recognizing that the Chesapeake Bay's importance transcends regional boundaries, there is a commitment to managing the Chesapeake Bay as an integrated ecosystem. A series of objectives have been established as a policy and institutional framework for continued cooperative efforts to restore and protect Chesapeake Bay.

The participation of the Interstate Commission on the Potomac River Basin (ICPRB) in the Chesapeake Bay Restoration and Protection Program benefits the nation, Potomac River Basin, and the Chesapeake Bay. The Potomac River is the second largest tributary of the Bay and the tidal Potomac is the largest of the eastern and western shore arms of the Bay system. ICPRB's technical, educational, and coordination capability and experience are valuable assets available to the governance structure of the Bay program. In this project, ICPRB staff takes a role in coordinating and assisting with activities in the Chesapeake and Potomac basins needed for the success of the Bay program.

ICPRB staff are members of, and work with, the Chesapeake Bay Program Implementation Committee, Living Resources Subcommittee, Monitoring Subcommittee, and Modeling Subcommittee.

Specifically, ICPRB works with signatories to the Commission (District of Columbia, Pennsylvania, West Virginia, Virginia, Maryland) to analyze and evaluate point/non-point strategies and to establish habitat objectives for important recreational species for the Potomac River basin in achieving the agreement goal. ICPRB will report on a water quality trend analysis methodology utilized by ICPRB in analyzing data from a Potomac basin water quality monitoring network. The Monitoring Subcommittee will be supplied with a written inventory and description of monitoring programs underway in the Potomac River basin. ICPRB will develop Potomac River basin scenarios for meeting agreement goal of 40% basin-wide nutrient load reductions and for consideration by the Modeling Subcommittee. Alternate fertilizer application regimens will be developed for calculating nutrient reductions in watershed model runs.

4. Toxic Spill Management

ICPRB will exercise the ICPRB Toxic Spill Model for Potomac water supply management. Several recent spills in rivers outside the Basin underscore the value of this methodology.

The Potomac River basin system is a source of water for the Washington, D. C. Metropolitan area (WMA) and numerous smaller municipalities located on the main stem of the Potomac River and on the many tributaries. In particular, the Potomac River provides an increasing portion of the water supply for ~~the~~ WMA. The drainage area upstream of the intakes for the water supply utilities in the WMA is substantial: 11,000 sq. miles (28,490 km2).

Numerous opportunities exist for accidental spills of toxic materials to enter the Potomac system on the main stem or one of the tributaries and temporarily threaten the potability of the water. The risk of an accident is real -- at least two potentially dangerous spills have reached the Potomac River in recent years. A toxic substance was introduced into the Potomac river upstream of Shepherdstown, W. Va. in June 1981. The spill was small in quantity and of a volatile compound, aniline. Diesel fuel was accidentally discharged into the Potomac River near Cumberland in December 1986. Although downstream concentrations were not threatening in either case, the events underscore the need for effective management of toxic spills.

The toxic spill model routes a dissolved conservative substance from the point the substance enters the river network to points of particular concern downstream (e.g. municipal water intakes).

5. Ground Water Issues

Geoscientists, chemists, engineers, agronomists and microbiologists are promoting the need to protect precious ground water resources. ICPRB is promoting a groundwater conference within the Potomac basin and, in concert with Virginia and Maryland, requested the help of the National Water Well Association to conduct such a conference. The Association enthusiastically accepted the idea and is moving forward to hold a conference at George Washington University during March 1989. The conference "Ground Water Issues and Solutions" will be designed to raise the awareness of administrators, legislators, and regulators of the Potomac region to current and oncoming problems. ICPRB, as will other agencies, will seek data and information for analyzing the impact on ground water activities such as coal mining, dense commercial and residential development, hazardous waste sites, trash incinerators, and so forth.

There is considerable interest in relating ground water problems to the Chesapeake Bay restoration. Since the Potomac basin is one of the larger watersheds impacting the Bay, discussions and exchange of scientific information at the conference will be valuable to the regional program of restoring and maintaining the quality of the regional water resources.

ICPRB will attempt to stimulate participation of basin personnel through its public education and information services. Heavy attendance at the conference can only be beneficial to the solution of ground water problems.

6. The Recreational Potential of the Potomac River Basin

As a result of ICPRB's 12-day canoe trip down the Potomac from Cumberland, Maryland to Washington, D.C., a movement is emerging for formulating policies, plans, and actions to preserve and to emphasize the recreational opportunities of the Potomac River. After the canoe trip, ICPRB generated the report Potomac River Expedition '87 and circulated it broadly among legislators and administrators with responsibilities and interests in the basin.

Many of the readers of the report have written ICPRB and appear unanimous that ICPRB should continue its role of summarizing water quality data and of working on hydrological studies such as the Sediment Transport Studies for guiding decisions for restoring and improving the Potomac River. Governor Baliles of Virginia noted from the report "that the Potomac River is a significant resource to all the neighboring states and the nation as well".

Another significant issue for which ICPRB is providing continuing data analyses and recommendations relates to whitewater canoe racing and whitewater rafting on the Savage and Potomac respectively. The recreational needs of canoeists and rafters conflict with water supply and water quality requirements. ICPRB is providing the technical basis for accommodation among these users while balancing the habitat needs of the trout fisheries.

Regarding recreational potential of the Potomac basin, ICPRB is also pursuing projects that can utilize the waters of the North Branch of the Potomac River. At the present time, these waters are impacted by the past coal mining practices. However, improvements are beginning to surface in various tributaries and creeks leading into the North Branch.

It makes economic sense and recreational opportunity sense to fit projects to the water quality. ICPRB is, and will, seek such opportunities for the upper basin.

As a Federal Agency, the National Park Service was able to use ICPRB's expertise on river modeling and flow forecasting to assist in managing historic resources and enhancing visitor safety in the Potomac River.

The NPS has been facing a serious problem in the Great Falls area of the Potomac River with a number of drownings associated with changes in Potomac flows. The ICPRB was challenged to produce a flow forecasting system that would tell in advance when subtle but critical increases in flow were coming downriver. Such flows become magnified in the narrow throat of gorges below the falls and may trap visitors who have ventured out on rocks of the river not knowing the water level was soon to rise. The ICPRB has adapted a computer based warning system, dubbed Enhanced Limited Automatic Remote Collection System (ELARC), as one of the mechanisms to help the Rangers at Great Falls manage the park under threatening conditions.

The ICPRB is also being asked to assist with aspects of flood forecasting so NPS can better react to flow changes of the Potomac that may threaten historic structures along the 180 mile stretch of the C&O Canal National Historic Park from Cumberland, Maryland to Gerogetown.

7. Other Continuing Activities

a. ICPRB is working with federal and state scientists to develop a Monocacy watershed model and a free-flowing Potomac transport model. Further, ICPRB is involved in the U. S. Army CORP's development of the 3D Bay model. The development of a detailed water quality model of the Monocacy River basin will continue as a joint project with the Maryland Department of the Environment. The model, when calibrated and verified, is intended to be used as a policy tool for developing and contrasting nutrient control strategies for the Monocacy basin and for the Potomac River.

b. Assistance will continue to be provided to several West Virginia county health departments in the development and implementation of a groundwater data base to include water well, sewage disposal, and water quality information.

c. An analysis of toxic water quality parameter data is being performed. This task will include trend analysis and comparison of data values with human health risks and stream water standards and criteria.

d. ICPRB is planning a 50th Anniversary commemoration by launching a unique exhibition at the Smithsonian Institution to dramatize fifty years of degradation and gradual recovery in the life of the Potomac River and its basin, a fantastic recreational and economic resource.

50TH ANNIVERSARY EXHIBITION

Mr. **Bevill**. Can you give us some more information about your planned 50th anniversary exhibition at the Smithsonian Institution?

Mr. **Zeni**. Yes, sir. It was scheduled for July of this year, and has now been postponed until November of this year, just before Thanksgiving, the reason being that the Smithsonian Institution is going to have an exhibit on the Alaskan oil spill from September to about the middle of November, and they feel we would be a logical carry-on and have asked us to move it.

What we intend to do is to show by decades the—in a sense, the restoration of the River. I think the theme of it is "Healing a River." The idea is that cooperating and working together can make it happen. What we will take is the themes of water quality and toxics, and take them through the five decades so that people will be able to observe how an Interstate Commission—but really how they working together can restore a river to the condition it is today.

What we hope to do is exhibit it for two months at the Smithsonian, at which time it will go on the road. It will go to Harrisburg, to Charleston, West Virginia, to Richmond, Virginia, to Annapolis, and be displayed for several months there. And then the National Park Service is considering, and I think we probably will get permission to display it at Great Falls Visitors Center on the Virginia side of the Potomac River in the park. It will be there.

We will make it available to schools, if they so want it, but this will be a permanent kind of exhibit that can be maintained and updated as we go along, sir.

Mr. **Bevill**. You mentioned that President Johnson described the Potomac River during his Administration as an open sewer. I also remember he estimated the cost of cleaning it up at $10 billion. I am curious. Do you have any figures on what that has cost? Obviously, it was money well spent, but I am curious to know what the cost was.

Mr. **Zeni**. Mr. Chairman, I don't have an exact figure, but I don't think it reached $10 billion. The figure I hear used is it cost $1 billion over the last 10 years. Most of that went into the Blue Plains Treatment Plant in the District of Columbia. But I am not counting what is going on now in terms of its contribution to the Chesapeake Bay program.

We start looking at best management practice in the Upper Basin and treatment plants along the River. So that is a continuing restoration. But to get where we are today, I would say it would be closer to $1 billion rather than $10 billion.

Mr. **Bevill**. Mr. Myers?

Mr. **Myers**. No questions, Mr. Chairman. Thank you, Mr. Zeni, for your continued support.

QUESTIONS SUBMITTED BY CONGRESSMAN BEVILL

Mr. **Bevill**. Thank you, Mr. Zeni, for your fine testimony. I have some questions you can answer for the record.

This committee will stand adjourned until 1:00 on Monday.

[The information follows:]

Water Rationing

Mr. Bevill: Mrs. Cole, please describe for the Committee the role the Commission has played in averting water rationing in the Potomac River basin.

Mr. Zeni: The Commission, through its Section for Cooperative Water Supply Operations on the Potomac, is responsible for maintaining and implementing the water resource allocation plan for the Washington metropolitan area. During the East coast regional drought of the mid-1980's, when major cities from Boston to Atlanta were rationing water to avoid the complete depletion of their resources, the resources of the Washington metropolitan area were maintained in excellent condition. The Commission continuously monitors river flows, reservoir storage levels, and water supply demands. When local resources are insufficient to meet unrestricted demand, the Commission, through its water allocation computer programs and other algorithms, directs the river and reservoir withdrawals of the major local water supply utilities so as to minimize the possibility of water rationing. This regional procedure was developed by local agreement and works smoothly due to the continuous efforts of the Commission. Furthermore, it has proved to be an important inexpensive alternative to each utility having to build and operate its own new resources.

In addition the Commission on behalf of the Washington metropolitan area, including all the associated federal civilian and military facilities, has an active role in broader water supply issues. In order to reduce conflict in rights to water, the Commission performed the technical analysis which became the basis for the Maryland Consumptive Use Regulation which requires all new water use to be supported by storage. The Commission is an active participant in the Reallocation Study for Jennings Randolph Reservoir on the North Branch being performed by the Corps of Engineers. The results of this study will impact the water supply resources of the Potomac River basin, particularly the

Federal seat of government for decades to come. The Commission developed and maintains a time of travel and dispersion model for the Potomac River Mainstem and many of the major tributaries. This model is used several times a year in cooperation with state and federal emergency response management agencies to minimize the impact on water suppliers throughout the basin of toxic spills in the River.

Long Term Water Needs

Mr. Bevill: Has the Commission undertaken any studies of the long term water needs of the Washington metropolitan area beyond the year 2000?

Mr. Zeni: The Commission has participated in every major water supply study for the Washington metropolitan area for many years. In 1989, at the request of the parties to the Potomac River Low Flow Allocation Agreement (which include the U.S. government), the Commission undertook a major study of demands for water likely to occur form the present through the year 2010. In addition to that study currently underway, the Commission has proposed to perform the water needs analysis for the Corps of Engineers Reallocation Study of the Jennings Randolph Reservoir.

Evidence of Potomac River Quality

Mr. Bevill: Other than the fish caught by Justice O'Connor, is there other evidence you can cite to show the quality of the Potomac is improving? Has there been any measurable improvement in the quality of the Anacostia River in recent years?

Mr. Zeni: Improved quality in the upper Potomac estuary is supported by many indicators. All of the measures of water quality in the following table, except nitrogen, show improved water quality.

Indicator	Average summertime		
	1965-69	1985-88	
Bottom D.O.	4	6	mg/l
Secchi Depth	0.44	0.63	meters
Surface Chlorophyll	85	30	ug/l
Total Phosphorus	0.4	0.1	mg/l
Total Nitrogen	2.7	2.7	mg/l
Total Coliforms	>100,000	150-200	mpn

Living resources in the upper Potomac estuary have responded to the improved water quality. Algae blooms are much less frequent today than in the 1960's, when they were endemic. Submerged aquatic vegetation (SAV) has returned after having disappeared in the early

1960's. There are now about 3,600 acres of SAV beds. Recreational fishing has improved so much that the upper Potomac is nationally recognized for its bass fishing, with annual fishing tournaments.

Recreational use of the river has increased as water quality and living resources have improved. There are professional fishing guides now working on the river. The District of Columbia has been holding annual waterfront festivals since 1981. Recreational boating has increased throughout the 1970s and 1980s. In general, the total coliform levels are now low enough to allow swimming.
Measurable improvement in the quality of the Anacostia River:

A variety of pollution and erosion problems currently exist in the Anacostia River basin which are principally due to the impacts of urbanization. However, recent trend analysis of resident fish populations performed by ICPRB found significant increases in species diversity since similar studies performed in 1972 and 1948. Erosion and pollution abatement measures implemented in the Anacostia have apparently begun to pay off. It should be emphasized that there is still much work remaining before the Anacostia River is restored and can once again be an object of pride.

Differences-Anacostia Restoration and Anacostia Stream Restoration

Mr. Bevill: Please describe the differences between the Anacostia Restoration and Anacostia Stream Restoration projects shown on the budget justification material.

Mr. Zeni: The Anacostia Watershed Restoration Agreement of 1987 designates the Interstate Commission on the Potomac River Basin to:

(a) coordinate and implement public education and public participation activities; and

(b) develop a resource enhancement and restoration proposal to address issues such as dredging, river access, and biological productivity.

These tasks are separate, but two related and mutually supportive projects.

1. The Anacostia Public Education & Participation Project (Anacostia Restoration)

This project has three objectives: to support and enhance local and state watershed improvement efforts, to educate the public about watersheds/water quality generally, and specifically in the Anacostia watershed/Chesapeake Bay system, to encourage public participation in Anacostia cleanup efforts.

This is an aggressive educational/information transfer effort with three elements: 1. A quarterly newsletter, now reaching 9,000 people; 2. Coordinators, one for each sub-basin, who are responsible for activities, person-to-person, community outreach with his or her sub watershed; 3. Educational materials and activities such as sub-basin publications, workshops (monitoring, adopt-a-stream techniques, etc.), and streamwalks.

2. The Resource Restoration and Enhancement Project (Anacostia Stream Restoration)

The objective of this project is to develop a resource restoration and enhancement plan to address the issues of biological productivity. The project has two phases: Phase I: improvement of the physical environment to support a greater fisheries population, which requires a survey that defines the current chemical, physical, and biological conditions of the watershed; Phase II: the introduction of desired fishery resources and the establishment of viable resident populations, in conjunction with the physical restoration of the river.

Other Sources of Income

Mr. Bevill: Please provide for the record a listing of the "Other sources" of income shown on the budget justification material.

Mr. Zeni: "Other sources" of income are projected to include:

MD DNR Tidewater-Restoration/Anacostia Fisheries-	$150K
MD MDE 205 (j) - Potomac River Model -	50K
DC DCRA - Anacostia Public Participation -	80K
PA DER - Automatic Monitoring Station -	55K
VA SWCB 205 (j) - Groundwater - Shenandoah -	45K
EPA CBLO - Chesapeake Bay Nutrient Reduction -	65K
MD DNR-Coastal Zone-Stormwater Control Designs-	30K
MD MDE - Monocacy Watershed Model -	30K
MD DNR WRA-Jennings Randolph Reallocation Study-	50K
DC DCRA - Sediment/Fish Toxics Survey -	30K

Federal Commissioners and Compensation

Mr. Bevill: Who is the current Federal member of the Commission? Are the Commissioners compensated for their services?

Mr. Zeni: The current Federal Commissioners are:

Dr. Theodore P. Perros, Ph.D.
Mr. Frank J. Donatelli
Mr. Hugh C. Newton

The Commissioners are not compensated for their services. Travel and lodging expenses for Commission business is reimbursed.

Soil Conservation Service

Mr. Bevill: Do you work closely with the Soil Conservation Service in conducting studies of sediment and nutrient transport for nonpoint pollution sources?

Mr. Zeni: The Commission works closely with the Soil Conservation Service on a number of issues. Our work with the Chesapeake Bay Program in the production of unit financial effectiveness information for agricultural best management practices relies on SCS data and information. In addition, the results of the study will be of direct benefit to the SCS. The Commission's nonpoint source monitoring and modeling in the Monocacy River basin, tributary to the Potomac, require ongoing close coordination and exchange of information with the SCS. The Commission is working closely with the SCS on developing interagency projects in the Anacostia River basin and in the North Branch watershed. Both these projects would address sediment and nutrient transport for the eventual control of nonpoint sources of pollution.

Description Monocacy Watershed and Potomac River Model

Mr. Bevill: Please describe the items of work identified as "Monocacy Watershed Model" and "Potomac River Model" in the budget justification material. Will these models be similar to the model developed by the Corps of Engineers for the Chesapeake Bay?

Mr. Zeni: The Monocacy Watershed Model is to develop a water quality data base and integrated (instream processes as well as land surface and subsurface processes simultaneously) watershed model that will permit the Maryland Department of the Environment (MDE) to quantitatively evaluate point and nonpoint source nutrient controls for the Monocacy watershed. HSPF is the model framework. Issues to be addressed by this model are:

(A) can the Chesapeake Bay Program's commitment to reduce nutrient pollution by 40% be achieved in the Monocacy basin?

(B) what kinds of controls will be necessary and where in the Monocacy watershed?

(C) what are the relative contributions of point and nonpoint source loads to the Potomac (and ultimately to the Chesapeake Bay) from the Monocacy River.

The Potomac River Model is to develop a computer based mathematical model of water quality in the Potomac River mainstem, from Luke MD to Washington DC, to be used by the MDE for the assessment of water quality problems and for the development of management decisions relating to the impact of changes in point and nonpoint source loads. The modeling framework is WASP which differs from HSPF in that it includes instream processes only.

Neither model is similar to the Corps of Engineers' Chesapeake Bay Model. However, the Monocacy model uses the same framework (HSPF) as the Bay Program's Watershed Model. Our staff are working closely with the Bay Program to share with them the expertise that we have developed with the Monocacy model that will assist their model.

Flood Control Studies in WV Working with COE

Mr. Bevill: What is the status of your work with the Corps of Engineers and the State of West Virginia on the flood control studies of Petersburg and Moorefield, West Virginia? When will these studies be completed?

Mr. Zeni: Beginning in 1987, the Commission worked with the Corps of Engineers on the final phases of the Reconnaissance studies for local flood protection for Petersburg and Moorefield. For the past two and a half years, the Commission has devoted significant resources to performing the responsibilities of Local Sponsor for the Feasibility Phase of the flood control studies.

As the Feasibility Phase draws to a close in early to mid-1990, the Commission will continue to work with the Corps of Engineers on matters concerning flood warning and response, and incorporating modifications to the project which were requested during the public meetings in both of the communities.

As part of its local sponsorship during the Feasibility phase, ICPRB had developed flood warning and response plans for both "with and without project" conditions. The communities are vulnerable to all flooding until the projects are completed (six or seven years hence). In the meantime, adoption of the "without project" flood warning and response plan would likely save lives and property. ICPRB will work with the communities and the Corps of Engineers (who plan to address this issue as a Section 22 project) to fully implement this plan.

During the public meetings in both communities, concerns were expressed by those people most directly impacted by the projects. Many of those concerns could be accommodated with little or no significant change to the project. ICPRB will work with the communities and the Corps of Engineers during the Preliminary Engineering and Design Phase of the projects to assure that local concerns are met to the greatest extent possible.

Federal Contribution

Mr. Bevill: Prior to FY 1988, the Federal contribution to the Commission had been approximately equal to the largest signatory contribution. For FY 1991, the Federal contribution would be three times the largest signatory contribution. Whey is there a need for the Federal contribution to be so high at this time?

Mr. Zeni: While it appears that ICPRB is requesting a Federal contribution three times higher than the largest signatory contribution for FY '91, it should be noted in the answer to Question 5 that the signatories are contributing additional financial resources over and above their general fund contribution. The largest signatory contribution amounts to $376,000 plus $104,075 or $480,075.

However, the federal contribution, besides being at least equal to the largest signatory contribution, should be calculated on other bases. The Federal government is the largest riparian landowner along the Potomac River. Its resultant impact on the water resources is proportional to its ownership. Further please refer to Questions #1 and #2 with regards to Commission service to the federal establishment for water supply.

Further, the Anacostia River runs through the heart of the Nation's capital and again the federal government is the largest riparian owner on the tidal Anacostia. ICPRB prods and instigates local and state action to clean up the Anacostia. A clean and productive Anacostia River can only make the capital a better place to live and work. The Potomac River is the second largest flow into the Chesapeake Bay. With the Bay restoration a national program, ICPRB's participation serves federal interest. Since participation, as opposed to construction, in the Bay program is not financially supported, ICPRB seeks increased federal support to help support its participation.

50th Anniversary Exhibition

Mr. Bevill: Can you give us some more information about your planned 50th Anniversary exhibition at the Smithsonian Institution?

Mr. Zeni: Introduction

The Potomac River Basin has been the national model for resource management since the turn of the century, and it is an integral part of the Chesapeake Bay system. The Potomac River contributes 18% of the Bay's fresh water, second only to the Susquehanna. Over the past half century the Potomac has suffered severe degradation, followed by a gradual recovery that continues. Next year marks the fiftieth anniversary of the formation of the Interstate Commission on the Potomac River Basin, which has overseen efforts to control and reduce pollution in the watershed. This anniversary coincides with 1990 efforts in support of the Clean Water Act and the 20th anniversary of Earth Day.

This proposal is for an exhibition to mark these anniversaries by examining the causes of the Potomac's degradation, the efforts to rehabilitate it over the past half century, and the continuing challenges of the present and the future.

Need for Project

Over the past decade public concern with national and global environmental issues has increased tremendously. The recent history of the Potomac Basin is an excellent case study for public education on the causes and process of environmental degradation and the integrated regional approach essential for protection and recovery.

The Potomac Basin is of unique value for illustrating critical environmental issues. The 14,670 square-mile area's geologic, hydrologic, and socioeconomic diversity presents a corresponding diversity of pollution threats, including industry, mining, agriculture, urbanization, and suburbanization. The establishment of the Commission 50 years ago was at the time an innovative problem-solving mechanism. This ground-breaking vehicle has permitted the basin's five state jurisdictions plus the federal government to resolve their shared water resources problems through cooperation and coordination, and provides a valuable model for other regions. The recent history of "The Nation's River" and its success story is symbolic of our growing awareness of our abuse of the environment, and the requirements for its restoration and protection.

Goals and Objectives

This exhibition is intended to educate the public on environmental (water supply and quality) issues from the perspective of a major drainage basin, one that is a significant part of the Chesapeake Bay, and to reinforce the concept of regional cooperation and coordination as public policy. Specific objectives are to:

- o Illustrate some of the root causes of environmental degradation, including unplanned growth, irresponsible waste disposal, and failure to account for environmental and regional interconnections.
- o Describe some of the specific threats to water quality, such as sewage, industrial waste, agricultural and mining runoff, etc., and the ecological and physical processes that degrade aquatic environments, including eutrophication, deoxygenation, siltation, and acidification.
- o Explain the consequences of pollution, such as unhealthful drinking water, destruction of fisheries, impairment of recreation, and declining quality of life.
- o Increase awareness that a watershed is an interrelated ecological unit, whose problems must be addressed on a regional basis.
- o Show how a regional strategy and institution has been successful in restoring damaged water quality in the Potomac Basin.
- o Identifying present and future environmental threats to the Potomac Basin and the strategies that may be used to overcome them.

Description of Exhibition

The exhibit will examine how population, economic, and social changes have affected the basin's water supply and water quality over the past fifty years. Within this historical framework it will describe pollution threats, ecological processes, and protection and rehabilitation strategies. Concluding sections will discuss present problems and the prospects for the future of the basin. Throughout the exhibition there will be an emphasis on the need for regional cooperation and coordination in dealing with environmental issues.

The exhibition will be designed to travel, and display is planned for at least five sites. The first venue will be the North Gallery of the Smithsonian Institution's National Museum of Natural History, where the exhibition will open in November 1990 and be on view for two months. Additional venues, chosen for maximum public exposure, have not yet been arranged, but are expected to include the state capitals of the remaining jurisdictions of the Potomac Basin: Annapolis, Maryland; Richmond, Virginia; Charleston, West Virginia; and Harrisburg, Pennsylvania.

DC Artificial Reef Evaluation Description

Mr. Bevill: Please describe the "DC Artificial Reef Evaluation" project.

Mr. Zeni: The object of this evaluation was to determine the effectiveness of three types of artificial reef modules which ware to be deployed as part of the District's fishery enhancement efforts. Pre-placement studies were performed to characterize the existing fish and benthic fauna,, substrate type, and vegetation cover. Based on the results of the study, recommendations were made for future development of reefs and reef-pier complexes within the District of Columbia.

EPA Section 106 Funds - Description of Work

Mr. Bevill: Please describe the work you do using EPA funds under Section 106 of the Clean Water Act.

Mr. Zeni: ICPRB is receiving Section 106 funds to partially support the following activities:

A. The Monocacy Watershed Model, described above in (9).

B. To provide water quality assistance to the states, including state agencies, regional and local governments, and citizen requests for information. Assistance refers to requests for information and data, reviews of their work, participation in intergovernmental committees overseeing water quality improvement, and certain short duration technical investigations.

C. Water quality planning and management, which sets aside some funds to allow for ICPRB program planning.

D. Anacostia Restoration project, which is described in (4).

E. Publication of the Potomac Basin Reporter, which is a monthly newsletter mailed to approximately 14,000 citizens interested in Potomac basin water quality.

Through Section 106 support, ICPRB brings to these tasks the perspective and technology championed by EPA Region III.

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